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THE PRESENT STATUS OF RESEARCH AND TEACHING IN PHARMACOLOGY

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AND
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The conspicuous rôle played by pharmacology in the development of modern medicine has established this comparative newcomer among the medical sciences as an outstanding and independent field for scientific endeavor. Through the numerous discoveries and valuable therapeutic contributions pharmacology has given medicine, this study has demonstrated its ability to work shoulder to shoulder with its older, fellow sciences and today it fulfils in a highly creditable manner its many important duties to research and medical education. Compared to past research achievements in this field, even greater gains for the future are promised by the vigorous activity and interest displayed in the pursuit of present pharmacologic investigations. In medical education also pharmacology is advancing to a recognized position as one of the major subjects of the curriculum. Scarcely a generation ago it was included as a very minor part of the course in materia medica; today it dominates the field of drug studies.

Few medical sciences provide as many excellent opportunities for significant and important future contributions to scientific medicine as does pharmacology. It is therefore desirable that certain problems inherent in the subject be examined critically and met frankly, to assure further advance of medical pharmacology and to forestall a reaction leading to subordination of the science to its former minor place in the medical curriculum. At present, pharmacology is advancing rapidly, but even now there are again evidences of drug nihilism [1] which must ultimately react against it. Thus, it is necessary to take cognizance of the present state of research and teaching of therapeutics in any discussion of pharmacology. Our purpose is to record what we believe to be the views of a number of younger men in pharmacology, bringing to attention certain serious problems that threaten the maintenance of the present high status of pharmacology.

RESEARCH IN PHARMACOLOGY

Current interest in pharmacologic investigation is keen both in research institutions and in commercial laboratories. A general movement is under way, particularly among pharmaceutical concerns, to devote as much money and time as practicable to the scientific development of new and better medicinal agents. Recently several large and well equipped laboratories, dedicated almost entirely to pharmacologic research, have been completed. In medical schools greater opportunity for study is continually being made possible through the growth and strengthening of present departments by personnel and budget increases. The recent establishment of independent departments of pharmacology in two of the score or more schools that have continued to place this subject under the control of another department has been a definite step forward. Numerous financial gifts and substantial research grants, while small compared to the monetary benefits some of the other medical sciences receive, have materially increased the number of workers who are devoting their time and energy to pharmacology. Due credit must also be given to those pharmaceutical concerns which have furthered the cause of pharmacology through the many fellowships and liberal grants they have bestowed on our medical schools.

In line with these increased opportunities for pharmacologic research, the development of cooperative efforts in which the pharmacologist plays a dominant rôle has been a healthy symptom of the growth of modern pharmacology. Since the practical demonstrations of the worth of such cooperative efforts by Ehrlich and later by Loevenhart, there has been little question of the value of such work in facilitating advances in pharmacologic knowledge and, more importantly, in therapeutics. An outstanding example of cooperation is that now in progress in various laboratories and government institutions which have taken on themselves responsibility for dealing with the problems of morphine addiction.[2] Both authors received their introductory research training in less pretentious but satisfactory cooperative studies of the chemotherapy of amebiasis [3] and leprosy, in which a number of commercial pharmaceutical laboratories, university departments, hospitals, leprosariums, a tropical medicine research institute and a state prison were included. Since we are convinced that the success attained even in such minor examples was far above that which could have been made by any single laboratory working independently, our plea is for expansion of combined endeavor with more laboratories deliberately entering on such a course. A particularly important advantage is the possibility of the pharmacologist so seeing the problem through to its therapeutic application, which is often difficult in independent work.

From the Departments of Pharmacology, University of West Virginia School of Medicine, and the University of Cincinnati College of Medicine.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. David, N. A.: The Recent Graduate and Drug Nihilism, J. A. M. A. **106**: 405 (Feb. 1) 1936.

2. Edmunds, C. W.; Eddy, N. B., and Small, L. F.: Studies on Morphine Addiction Problem, J. A. M. A. **103**: 1417 (Nov. 10) 1934.

3. Leake, C. D.: Chemotherapy of Amebiasis, J. A. M. A. **98**: 195 (Jan. 16) 1932.

A closely allied problem is that of the varying quality of pharmacologic research. Since pharmacologists are primarily individuals, it is to be expected that the individual approach to a problem will differ in each case. Too often this results in an imbalance—either intense, difficult work is expended on a very minor action of a drug, or else therapeutic application is made of a drug that has not been adequately investigated as to its major side-actions. The need for some standard pharmacologic analysis of new agents is becoming recognized generally, but opinions as to exact methods vary widely. Certainly pharmacology is in a position to formulate at least the main points of investigation of new compounds before these agents are tested on human beings.

The aims of pharmacology are sometimes misunderstood by the profession, because the more dramatic advances are concerned with the introduction of new therapeutic agents. There are no ideal drugs today, or none that could not conceivably be improved on. Past accomplishments in the improvement of therapeutics have been made chiefly through the use of new agents, but equally important is the phase of pharmacology which deals with the actions of known, older drugs and which leads to the discarding of ineffective agents while pointing the way to the rational development of new drugs.[4] Thus, while the aim of medical pharmacology must be the determination of the action of pure chemicals with regard to their possible therapeutic application, pure pharmacology, though not dealing directly with therapeutics, is of such importance to the advance of medical pharmacology that it should not be unsupported by the medical profession and the medical schools.

TEACHING OF PHARMACOLOGY

Part of the current confusion with regard to the present status of teaching in pharmacology, evidenced by the symposium of the Association of American Medical Colleges,[5] is due to an inability or reluctance to differentiate properly between pharmacology and therapeutics. Advance in the preclinical sciences has been general but in biochemistry and physiology has been adequately met by relatively minor teaching adjustments, while in pharmacology the medical course has necessarily been entirely revised. Whereas, in the past, a large part of a course in pharmacology was devoted to materia medica and therapeutics because of lack of knowledge of basic pharmacology, this knowledge is now more than sufficient to fill the short period in which the student is exposed to pharmacology. In many instances this has resulted in almost complete ignoring of all but the major therapeutic facts; in most cases, much less therapeutics is now taught than formerly. The important development, which has not been universally appreciated, is that pharmacology is no longer synonymous with therapeutics.

The purpose of modern pharmacology in the medical curriculum is to widen the student's knowledge of biochemistry and physiology and so prepare him for a rational approach to therapeutics. If this ideal is fully served, students will learn more sound therapeutics than if they are subjected for an equivalent period to superficial therapeutic aspects of drugs, the applications of which can never be understood completely without explanation of the basic pharmacology involved. Unfortunately, the course in pharmacology comes at a time when the student "begins to feel like a doctor" and is resistant to any serious mental work which does not have immediate practical application. At the same time, the student needs "sufficient information of a pharmacologic character to enable him to employ safely, sanely and thoroughly, not many, but a few . . . agents in the treatment of abnormal functional and structural states" (MacNider[5]) and should not be impatient with studying such material. At West Virginia, students are told, "you will be learning practical applications of drugs for the rest of your career. Now is your only formal opportunity to learn why and how drugs act." However, through lack of interest or inspiration, Dr. Hayman's[5] statement that "the pharmacological knowledge of too many students seems confined to linking a certain disease with a particular drug, whose proper dose has been jotted down in a notebook carefully carried in his pocket" still remains generally true everywhere. His next words, "That is not pharmacology," seem to have no appeal to our future physicians.

One rational remedy for both horns of the dilemma—the lack of interest of students in pharmacology per se and the need for this information to be imparted to them as an introduction to modern therapeutics—is to provide adequate instruction in therapeutics as a separate course during the third or fourth year, rather than forcing the student to pick it up piecemeal from a dozen courses, as at present. Nor should the student be expected to have a perfect knowledge of modern therapeutics after completing what is, after all, only a transitional course from his preclinical work. As Dr. Lamson[6] so well expresses it, "Medicine, besides being a science, is an art and the giving of medicines in the best form and amount, and at the proper intervals, can only be taught by those who are in daily contact with disease. It is therefore wrong to expect the student to appear for the first time in the wards with a perfect understanding of how to treat patients, the art of which he will learn only after years of experience. The teaching of the action of drugs in disease as well as health . . . [is] . . . not necessarily therapeutics."

Viewed in this light, there is ideally no more reason why therapeutics should be taught in pharmacology than in biochemistry, anatomy or physiology. Yet because of the practical limitation that few schools offer adequate courses in therapeutics at the time it could best be taught,[7] some compromise must be made with the present conditions, which, we have seen, are definitely a holdover from past practice. That this practice was good at the time is no excuse for resisting improvement now. Each teacher must make his own compromise, but one in which one of us took part has proved valuable. This experiment, now closed, was conducted in the Pharmacological Laboratory of West Virginia University for ten years[8] and involved the study of human reactions to drugs by the students, in addition to the classic animal experiments. The details of this method and its results cannot be suitably given here but will appear as a separate report by one of us (N. A. D.).

If pharmacology is to develop fully in its rightful place as a major preclinical subject, it is necessary that

4. Puckner, W. A., and Leech, P. N.: The Introduction of New Drugs, J. A. M. A. **93**: 1627 (Nov. 23) 1929. Leake, C. D.: The Pharmacologic Evaluation of New Drugs, ibid., p. 1632.

5. DeGraff, A. C.: Teaching of Therapeutics, J. A. Am. M. Coll. **11**: 65 (March) 1936. MacNider, W. deB.: The Teaching of Pharmacology from the Standpoint of the Examiner, ibid., p. 70. Hayman, J. M., Jr.: The Teaching of Pharmacology from the Standpoint of the Clinician, ibid., p. 77. Edmunds, C. W.: The Teaching of Pharmacology, ibid., p. 83.

6. Lamson, P. D.: Methods and Problems of Medical Education, 13th series, New York, Rockefeller Foundation, 1929.

7. Osborne, O. T.: A Medical School Curriculum Leading to Rational Therapy Recommended by the American Therapeutic Society, New York M. J. **117**: 340 (March 21) 1923.

8. Bonar, M. L.: The Teaching of Pharmacology, J. A. Am. M. Coll. **4**: 313 (Oct.) 1929.

specially trained men be put in charge of didactic work in the subject. We sincerely hope that the day when any man with simply a medical training was considered eligible to teach pharmacology is past. Certainly no man without sufficient ability or interest in the subject to become a member of the Pharmacological Society should teach pharmacology. It is only fair that the same standards be set for pharmacology as are in force for physiology and biochemistry in our medical schools, and it is necessary for further advance in the subject that such standards be strictly adhered to. Equally rigorous standards must be set to assure the competence of men teaching therapeutics, and it is apparent that it would take an unusually gifted person to be able to teach both adequately.

The chief reason for the present necessity of a thorough course in basic pharmacology before the student is properly qualified for therapeutics is, of course, the great change in the nature of therapeutic practice brought about by the constant introduction of valuable, dangerous or sometimes worthless new therapeutic agents. In order that the student may be fit to judge their actions and worth, it is now necessary to emphasize the chemical aspects of pharmacology a bit more than has been customary with the older pharmacologists. In this regard, the splendid work of the Council on Pharmacy and Chemistry has served admirably to prevent a deplorable condition. But just as proper pharmacologic training should fit the student to make his own therapeutic prejudices independently of the therapeutic prejudices of his authorities, so it should fit him to make, at least grossly, conclusions similar to those of the Council in regard to the background of newly introduced therapeutic agents.

Overemphasis of chemical aspects of pharmacology is as reprehensible as Dr. MacNider [5] has shown it to be. A method that nicely avoids this, almost by definition, is to limit chemical discussion to the relation between the physiologic action and the chemical constitution of the drug, touching only on well substantiated examples of the application of the various laws involved. Such "biochemorphology" has shown itself to be a powerful weapon both in research and in teaching, although its full value cannot be appreciated until more data are available on many important points of biochemorphic relationships.[9] Its function at present, in didactic work, is to show the student by dramatic examples that pharmacology is the study neither of chemical properties of drugs nor of purely physiologic actions, but the interrelation of the two. It permits an assimilation by the student of an orderly series of facts and aids in placing pharmacology as a discipline on a scientific par with physiology and biochemistry.

Finally, the laboratory course in pharmacology has been criticized constructively by authors of papers in the symposium mentioned.[5] It is necessary that cognizance be taken of the criticisms of students as well. It is our belief that the laboratory course should serve only to supplement lecture material. In it the student learns methods of pharmacologic research without attempting to verify all pharmacologic knowledge or establish new facts. A major part of the experimental work, particularly of the more tedious and difficult setups, may well be shown by demonstrations. All experiments should be as simple and illustrative as possible, and the occurrence of unusual reactions thoroughly explained, as Dr. MacNider [5] points out. Emphasis must be placed on drugs useful in therapy or on closely allied drugs which illustrate certain phases of their action, rather than on beautiful, tenuous explanations of complex physiologic reactions which have no interest for medicine and may never have. Physiology is best taught in the physiologic laboratory, and the pharmacologist does not begrudge the physiologic use of drugs as molecular dissecting knives to illustrate physiologic principles—in physiology. Unless such drugs have important therapeutic applications, they have little place in the pharmacologic teaching laboratory. Just as chemical aspects of pharmacology should never be overemphasized, so only the pertinent physiologic information should be given in the student laboratory.

9. Knoefel, P. K.; Lonergan, Lester, and Leake, C. D.: Biochemorphic Aspects of Paraldehyde and Certain Acetals, Proc. Soc. Exper. Biol. & Med. **29**: 730 (March) 1932.

CONCLUSION

The encouraging results following the detailed analysis of the ailments of pharmacology at the last annual meeting of the Association of American Medical Colleges give hope that pharmacologists at least are awake to the present status of their specialty. For complete success, the medical profession as a whole can aid by being aware of the potential dangers in the rapid advance of modern pharmacology, particularly in its reaction on methods of teaching. It is our hope that the new generation of pharmacologists will live up to the present responsibilities of advancing the science as well as those before us have done and are doing.

ABSTRACT OF DISCUSSION

DR. H. B. HAAG, Richmond, Va.: Pharmacology should be in a key position in the medical curriculum; apparently, however, some medical executives are not cognizant of this enviable position of pharmacology and have relegated the teaching of pharmacology to physiologists, biochemists and even sometimes pharmacists. This negative attitude does much to discourage young men from entering pharmacology. It does much to make good men leave pharmacology. In view of the position of pharmacology in the medical curriculum, it is unfortunate that pharmacologists have apparently so little interest in clinical medicine. This is certainly exemplified here this morning and in the meetings in general, there being scarcely more than a half dozen pharmacologists attending this annual meeting of the American Medical Association. Whereas a primary function of pharmacology is to deal with fundamentals, I do think there is a lack of clinical application which might well be considered. A student studies the action of drugs on normal tissue, on normal animals, on normal individuals, as the authors have pointed out. It seems to me that these studies might well be extended to the third and fourth years, either as applied pharmacology or as therapeutics; either under the department of pharmacology or under the department of medicine. Here it could be extended to a study of the effect of drugs on the sick. This is an excellent place for the practical teaching of prescription writing, for in my experience it is quite hopeless to teach it purely didactically. I think that endocrines should be considered more extensively. We should consider the vitamin preparations, how they are given, how they are available, and their method of assay. The significance of bio-assays in general and their clinical application should be considered. The course on anesthesia should be extended by a cooperative arrangement with the department of surgery or the department of anesthesia. By a cooperative effort with clinical men the use of the old apothecary system could at once be done away with and the more scientific metric system substituted for it immediately. We have drifted too far away from materia medica and incompatibilities. Ignorance of these two makes the students when they graduate easy prey for the detail man.

DR. CHARLES W. GREENE, Columbia, Mo.: There were no pharmacologic teaching laboratories as late as 1900 offering required courses as a part of the medical curriculum. We

were then in the active throes of expanding medical instruction into a four year curriculum, with ever increasing premedical training requirements. Physiologic, biochemical and ultimately pharmacologic laboratories were then in the process of organization and development as required experience in the preparation for medicine. In 1900 I established at the University of Missouri the first teaching pharmacologic laboratory. It is true, as the authors state, that in this first decade of the present century courses in therapeutics and in materia medica along the old-time lines of didactic development were in the field. The establishment of pharmacologic laboratories in a way had to compete with and, in a degree, displace time allotted to these courses. In the University of Missouri laboratory of pharmacology the basic concept was that pharmacology to be of value to clinical medicine must be founded on the modifications of physiologic action induced by drugs. The emphasis in a teaching laboratory must be placed on this principle. It presupposes a thorough knowledge of physiologic actions as such and normals of such minute and effective detail that the modifications induced by drugs can be quickly identified, classified and stored for use in clinical application. During this first decade of the development and organization of teaching courses in pharmacology, progress was handicapped by an inadequate supply of trained pharmacologists. That deficit has been long since met and we have now the benefit of such leaders as Hunt, Sollmann, Loevenhart, McNider and Leake. As for research in pharmacology, it is only the natural unfolding of the science that has carried forward in the second and third decades from its elementary and organized teaching basis into the field of advanced problems and constructive research. This has been the second cycle of growth and development. In the first decade, the organization and foundation for normal teaching; in the second decade, development of constructive research and the advancement of research problems; and now, at the present, wide distribution of well organized laboratory courses required in every medical school, with staffs specially trained and doing constructive investigational work of the type and quality that have so rapidly expanded the pharmacologic field. I am old enough to have seen the successive steps and therefore to emphasize the fact that in the past thirty-six years there have been sweeping epochs of development of teaching, of research, of application of the principal of research to practical therapeutics.

DR. CARL A. DRAGSTEDT, Chicago: This timely paper calls attention to problems confronting the men attempting to teach what I think is one of the most difficult subjects in the curriculum to teach interestingly, adequately and well. With regard to the scope of the course, I do not like to feel that we should be constrained in teaching pharmacology to the practical matter of only the drugs that are used in practice and thus make our course a part of a trade school. I conceive of the department of pharmacology as a department in a university; that it should have university status and should aim to teach the subject with the same degree of perfection with which all the other sciences in a university are taught.

DR. GEORGE E. WAKERLIN, Louisville, Ky.: The question of bringing in a certain amount of applied pharmacology is important. The course in pharmacology in my estimation ought to bridge the gap between pure pharmacodynamics and therapeutics. Some of the courses in the various schools at present might be improved in this respect. One's attitude on the question of bridging the gap between pure pharmacodynamics and therapeutics depends to a certain extent on the training one has had. I think there will in the future be more agreement as to just exactly how this ought to be done in view of the fact that the training of pharmacologists is becoming more uniform. The same question arises in the teaching of physiology. For example, I have had students ask frequently if the department of physiology at the University of Louisville would not give a course in applied physiology, clinical physiology or pathologic physiology. In other words, the students will say "We learned about the physiology of respiration; we know the normal mechanisms of respiration but we don't know what the mechanisms involved in paroxysmal dyspnea are when we reach the clinical years." I am of the opinion that in physiology also an attempt should be made to bridge the gap between academic physiology and clinical physiology more effectively than is being done. I grant that some of this gap is still unknown territory, but there exists a good deal of information, some of which ought to be given to students in physiology and pharmacology.

DR. DAVID R. CLIMENKO, Cold Spring Harbor, N. Y.: I should like to make a direct suggestion for counteracting one of the faults the authors found: that is, the lack of interest that is usually shown by students in pharmacology. I think this can be overcome in a simple manner: there is no necessity for multiplying the number of drugs the student must consider. The careful study of a few well selected drugs, with the demonstration of the pharmacologic and therapeutic principles they illustrate, would more than make up for the lackadaisical instruction in the effects of a much larger number of drugs. This elimination of a large mass of purely factual knowledge would in itself tend to make a course in pharmacology far more interesting to the student. This increase in interest may be augmented by the introduction of clinical material. I do not mean the presentation of a patient with auricular fibrillation to students in pharmacology but rather the demonstration of clinical charts and records illustrating therapeutic effects. I have always noticed that one of the subjects that students pay most attention to and seem to be most interested in is the cardiac glucosides, and I think this is largely due to the fact that the teaching of this subject is largely dependent on the demonstration of clinical material.

DR. CHAUNCEY D. LEAKE, San Francisco: If the chairman might be permitted a remark, it is to emphasize again the distinction between the scientific aspects and the artistic aspects of medicine. In pharmacology, the actions of drugs may be demonstrated in a factual manner. That is the science of it. The application of this factual information to the problems of diagnosis or of the prevention of disease or the cure or the treatment of disease by means of chemical agents is a matter calling for artistic judgment, which depends on the individual problem presented by the patients, the knowledge that the clinician has and the judgment or skill he uses in making the application. That judgment can be trained only by long experience. But the scientist in teaching the action of drugs can point the way by which applications may be made.

DR. GEORGE A. EMERSON, Morgantown, W. Va.: I am grateful for the discussion and constructive criticism that has been offered here. I was particularly struck by the recommendation of Dr. Haag that pharmacologists be aware of the newer developments in therapy and in other sciences and show this by the introduction of more material on endocrines, for example. At West Virginia we have attempted to do this in a smaller way with the subject of anesthesia and have introduced a comprehensive course in elementary anesthesia into the pharmacology course. I appreciated Dr. Greene's remarks as to the history of pharmacology. I hope that the younger men in pharmacology will continue to build up the science as thoroughly as the older men have done. Dr. Dragstedt's recommendation that pharmacology should have the same status as any other university department should have the full support of all university administrators. One point that I did wish to bring out was that the change in the pharmacology course is necessary because of the change in the nature of therapeutics in recent years. The tremendous advance in the chemistry of drugs, the large volume of new, valuable, inactive or dangerous drugs that are constantly coming out, makes it necessary that the student be fit to judge drugs for himself. The pharmacology course should fit the student to make his own therapeutic prejudices independently of the therapeutic prejudices of his instructors or of the detail men later on. In the matter of therapeutics and pharmacology, perhaps I have been contaminated in my early training. Both Dr. David and I have been told at California that pharmacology is concerned with the action of drugs. Drugs have four applications in medicine: prevention, diagnosis, alleviation of symptoms and cure of disease. Half of the use of drugs in medicine is not strictly therapeutic use. We are concerned with diagnosis of disease or the prevention of disease as well as the cure or the alleviation of symptoms. Dr. Climenko's recommendation that fewer drugs be taught is well taken. If the course is restricted to drugs that really work, we have few enough drugs to work with.

FRACTURE OF THE NECK OF THE FEMUR IN CHILDREN

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The problems encountered in treating a small group of young patients with fracture of the neck of the femur have demonstrated specific hazards in the management of this fracture which affect the prognosis and the ultimate functional result. Bony union takes place promptly, as is true of most fractures in childhood, there being slight danger of nonunion, a disaster so greatly feared when this fracture occurs in the aged. The unfavorable prognosis that is associated with fracture of the neck of the femur in childhood arises from the frequent occurrence of malunion in the coxa vara position. This deformity tends to increase with weight bearing and may lead to extreme disability.

The reasons for the occurrence of union of the fracture in malposition may be structure of the bone at the site of fracture, muscular contraction or early weight bearing. The difference in osseous structure in youth and old age influences the character and site of the fracture; in children the fracture line generally crosses the base of the femoral neck, and separation of the fragments may be incomplete. Muscle pull in children is weaker than in adults; consequently reduction should be accomplished with ease and with most fractures displacement of the fragments after reduction should be less imminent. That these observations are not always constant is proved by the too frequent occurrence of poor functional end results following fracture of the neck of the femur in children. Furthermore, after most fractures in childhood, moderate deformity and displacement of the fragments may be overcome by the natural tendency for growth and repair of young tissues. This physiologic maxim does not hold true in fractures of the neck of the femur in childhood which have united with coxa vara deformity; under influence of weight bearing the shortening and impairment of function may increase, owing to a further descent of the depressed neck of the femur, until the head of the bone rests on the lesser trochanter.

HISTORICAL REVIEW

As is well known, fractures in and about the hip joint are common in the aged and relatively infrequent in childhood. Among the early records of the lesion is a report by Sir John Bland Sutton [1] of a pathologic specimen of an intracapsular fracture of the neck of the femur from an individual of about 15 years. This specimen was found in the museum of the Middlesex Hospital in 1883. In 1885 Cromwell [2] reported the fracture in a young subject. Whitman [3] in 1890 reported a case and in subsequent articles, the last of which appeared in 1909, added additional reports, making a total of thirty-one cases reported by him. Even in the early cases he differentiated between fracture of the neck of the femur in children and slipped femoral epiphysis, although the diagnosis was not confirmed by roentgenogram until 1897. Russell,[4] Telford,[5] Taylor,[6] Colonna [7] and others have emphasized the probability of latent symptoms following fracture of the neck of the femur in adolescents. In modern textbooks on orthopedic and traumatic surgery, however, this injury is generally dismissed with the brief statement that, although no age is exempt, fractures of the upper extremity of the femur occur more frequently in those past middle age. The method of treatment usually employed in the past for all age groups has been immobilization of the hip in abduction. Few surgeons have recognized that a technic which affords a high percentage of excellent end results in elderly patients may not be the method best adapted for the treatment of younger patients. The single modification of technic found in the literature is the recommendation by Böhler [8] that "the condition is best treated by continuous traction for three months."

Fig. 1 (case 1).—Traumatic separation of the upper femoral epiphysis.

CLASSIFICATION

From careful inspection of a number of roentgenograms illustrating injuries of the femoral neck in childhood it can be demonstrated that the lesion may be divided anatomically into three types: (1) epiphyseal separation, (2) transcervical fracture and (3) cervicotrochanteric fracture. Traumatic separation of the upper femoral epiphysis is extremely rare, while the variety in which the fracture line is situated at the junction of the femoral neck with the trochanters, the fracture classified by Delbet as the cervicotrochanteric type, is the most common. The fracture may be incomplete or the fragments may be impacted by the violence of the force.

In seven cases of this series the fracture occurred in the cervicotrochanteric area, two cases were transcervical, and one was an epiphyseal separation. Of twelve cases reported by Colonna, eleven were cervicotrochanteric and one was transcervical. In adults, on the contrary, fracture of the neck of the femur is most commonly of the transcervical or subcapital variety.

From the Willis C. Campbell Clinic.
Read before the Section on Orthopedic Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

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4. Russell, R. H.: A Clinical Lecture on Fracture of the Neck of the Femur in Childhood, Lancet **2**: 125, 1898.

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6. Taylor, H. L.: Fracture of the Neck of the Femur in Children, New York State J. Med. **17**: 508 (Nov.) 1917.

7. Colonna, P. C.: Fracture of the Neck of the Femur in Childhood: A Report of Six Cases, Ann. Surg. **88**: 902 (Nov.) 1928; Fracture of the Neck of the Femur in Children, Am. J. Surg. **6**: 793 (June) 1929.

8. Böhler, Lorenz: The Treatment of Fractures, fourth English edition, translated from the fourth German edition by E. W. Hey Groves, Baltimore, William Wood & Company, 1935.

TYPE 1: EPIPHYSEAL SEPARATION

CASE 1.—B. O., a white boy, aged 10 years, who had been well previously, fell down a flight of stairs and struck his hip against a door. In spite of immediate pain in the hip and thigh he was able to walk three blocks to his home. He was put to bed and remained there for one week. A roentgenogram of the hip was said to be negative and his attending physician allowed the boy to walk with crutches. The pain gradually subsided, but shortening of the limb developed and movement of the joint was limited. On examination the leg was found to be one-half inch shorter than the right and fixed in external rotation and adduction. Roentgenograms made April 7, 1936, showed a partial separation of the upper epiphysis of the left femur with upward displacement and rotation of the shaft and coxa vara deformity. Manipulation under complete anesthesia corrected the displacement. A plaster cast was applied, continuous traction being maintained for eight weeks. Walking in a caliper brace was then permitted.

Fig. 2 (case 1).—Five months after reduction by closed manipulation.

TYPE 2: TRANSCERVICAL FRACTURES

CASE 2.—R. A., a white girl, aged 13 years, brought to the clinic July 31, 1930, had fallen from a swing one week previously, a distance of 15 feet, injurying the left hip. On examination there was tenderness about the hip most marked over the greater trochanter, limitation of motion at the hip, and one-half inch shortening of the left leg. The roentgenogram showed a transcervical fracture of the femur. Under gas anesthesia the limb was manipulated, full abduction and internal rotation being secured; a roentgenogram at that time showed excellent reduction of the fragments. The limb was immobilized in a double spica plaster-of-paris cast, which was removed September 25 and an abduction hip brace applied. The fracture appeared to be firmly united at that time, with a slight coxa vara deformity. Weight bearing was not permitted for three months. In spite of treatment, which was believed to be adequate for protection of the fracture, the coxa vara deformity progressed and the apparent shortening of the limb increased until the left leg was apparently 1½ inches shorter than the right. In May 1931 a wedge shaped osteotomy of the femur was performed; this did not, however, fully correct the coxa vara. In December 1934 the patient again returned to the hospital because of adduction deformity of the hip that seriously interfered with walking. There was actual shortening of one-half inch and apparent shortening of 2 inches. Operative correction was once more advised and carried out, Dec. 11, 1934. On this occasion an oblique osteotomy of the femur was done, beginning at the greater trochanter and extending downward and inward for a distance of about 3 inches on the shaft of the femur. The lesser trochanter of the femur was detached in order to release the pull of the iliopsoas muscle. A wire was inserted above the femoral condyles for skeletal traction. Three months later, union of the osteotomy was firm. The deformity has been relieved, there is one-fourth inch shortening, both actual and apparent, and the patient walks without a perceptible limp.

CASE 3.—E. S., a white boy, aged 14 years, examined July 5, 1930, had sustained a fracture of the neck of the right femur fifteen months previously, when the automobile in which he was riding was struck by a railroad train. The fracture had been reduced and immobilized in plaster casts, but union had not occurred. The roentgenogram showed a fracture of the neck of the femur with nonunion. Operation was advised and the patient was returned for treatment in June 1931. A bone graft to the neck of the femur resulted in solid union. Motion in the hip is, however, greatly limited, and it is necessary for the boy to wear an elevation of 2 inches on the sole of the shoe.

TYPE 3: CERVICOTROCHANTERIC FRACTURES

CASE 4.—S. A., a white girl, aged 6 years, admitted to the hospital Oct. 26, 1931, had fallen from a porch, a distance of about 4 feet, two weeks before admission, and had been unable to bear weight on the right leg. The roentgenogram demonstrated the fracture at the cervicotrochanteric region of the femur, with considerable angulation of the fragments. The fracture was reduced by the Whitman method, and following immobilization in a plaster cast for three months union was solid. The result is classified perfect function, since the mother reports by letter that the child does not limp.

CASE 5.—J. T., a white boy, aged 16 years, brought to the clinic July 12, 1934, complained of an old fracture of the right hip which he received nine months before when he fell from a tree. The fracture had been recognized, immediately reduced and immobilized in a plaster cast for ten weeks. Union had occurred with adduction deformity and with 1½ inches shortening of the extremity. The roentgenogram showed a fracture of the neck of the femur with absorption of the neck and coxa vara. Operative correction consisted of an oblique osteotomy of the femur along the intertrochanteric line, detachment of the lesser trochanter so that it could be reattached higher up after traction, and insertion of a wire through the lower end of the femur for skeletal traction. Fixed internal rotation of the thigh necessitated a second operation of supracondylar osteotomy for derotation of the lower leg. One year later the patient was walking with a slight limp; there was 1 inch shortening but greatly improved function of the limb.

CASE 6.—J. E. M., a white boy, aged 8 years, brought to the hospital Aug. 21, 1935, had fallen 10 feet from a stack of barrel headings eleven months before while at play, sustaining a fracture of the neck of the left femur. After reduction of the fracture, a cast was worn for six weeks. The child was then allowed to walk. A deformity at the hip developed, with 1 inch shortening of the leg, causing the boy to limp. The roentgenogram demonstrated the typical cervicotrochanteric fracture of the neck of the femur, which had united in malposition. Operative correction consisting of oblique osteotomy and skeletal traction similar to that employed in cases 2 and 5 was carried out. The shortening of the limb was reduced to one-fourth inch and, although the child is still wearing a brace, function has been greatly improved.

Fig. 3 (case 2).—Transcervical fracture of the neck of the femur.

CASE 7.—M. D. B., a white boy, aged 6 years, was admitted to the hospital Nov. 9, 1935, for a fracture of the right femur. The injury had been sustained four days before, when the patient fell under and was struck on the hip by a seesaw on which several other children were sitting. The roentgenogram revealed a cervicotrochanteric fracture of the right femur. There was displacement and angulation of the fragments.

Under ether anesthesia the fracture was manipulated and reduced. Roentgenograms in both planes showed excellent position. A double spica cast was applied with the Hoke-Martin apparatus incorporated for continuous traction on the leg. The cast was worn for ten weeks and walking in an abduction brace was permitted at the end of three months. Firm union of the fracture occurred in the anatomic position.

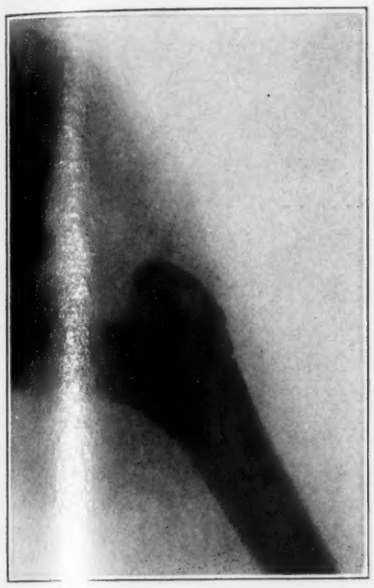

Fig. 4 (case 2).—Immediately following reduction by closed manipulation.

CASE 8.—J. H., a Negro girl, aged 4 years, fell from a second floor window, Aug. 6, 1934, sustaining multiple fractures; namely, a fracture of the neck of the left femur, a fracture of the pelvis, and a fracture of the left tibia and fibula. A roentgenogram made after reduction of the fractured femur at the Memphis General Hospital showed good reduction. The child has not returned for observation and cannot be traced.

CASE 9.—E. V., a Negro boy, aged 12 years, entered the Memphis General Hospital, Aug. 27, 1934. Four weeks prior to admission he had fallen from a tree, injuring the right hip, and had been unable to walk after the accident. The roentgenogram showed a cervicotrochanteric fracture of the right femur, with absorption of bone along the fracture line. A plaster cast was applied without manipulation of the fracture. The boy has moved from the city and has not been reexamined, but the parents report by letter that he has an excellent functional limb without a limp.

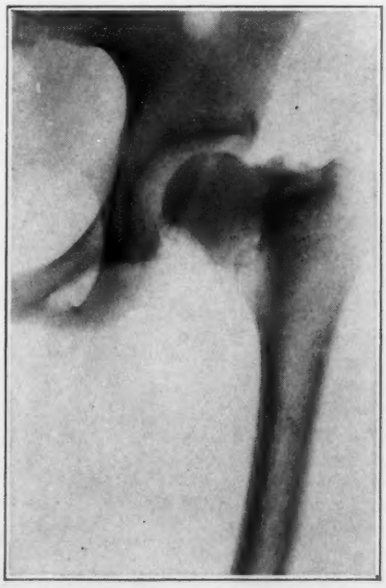

Fig. 5 (case 2).—Eight months after reduction, showing bony union with coxa vara.

CASE 10.—R. L. M., a Negro girl, aged 11 years, seen Jan. 27, 1936, had fallen down a flight of stairs five months previously, receiving a fracture of the left femur at the hip, a fracture of the pelvis and a fracture of the left radius and ulna. The original roentgenograms were obtained, which showed a cervicotrochanteric fracture of the femur and excellent postoperative position immediately following reduction. The limb had been immobilized in a cast for five months; union of the fracture had occurred in a position of coxa vara with 1 inch shortening. Surgical correction of the deformity has been advised but was refused by the parents.

Of ten patients with traumatic lesions of the neck of the femur, four were girls and six were boys. Their ages, when the accident occurred, varied from 4 to 15 years. Three of the patients were seen within a few days following the accident and seven were seen late. In three patients examined late, bony union had occurred with coxa vara deformity, and in one there was nonunion of the fracture. Two Negro patients cannot be traced, and in these cases the end results are not known other than that bony union was occurring when the patients were discharged from the hospital. In seven of the cases the site of the fracture was at the cervicotrochanteric junction; in two the fracture was transcervical, and one was an epiphyseal separation.

The cause of the fracture in each case was trauma of much greater violence than is associated with fracture of the neck of the femur in adults. This fact is forcibly demonstrated in the case histories: One patient fell from a swing a distance of 15 feet, one was injured when the automobile in which he was riding was struck by a railroad train, one fell from a high porch, two patients were injured by falling from trees, one fell from a stack of barrel headings, one fell under and was struck by a seesaw on which several other children were sitting, two fell down steps and one fell from a second story window. The violence of the injury is further demonstrated by the association of other traumatic lesions with the fractured femur. Two patients received in addition a fracture of the pelvis; one of these also had a fracture of the radius and ulna, and one had a fracture of the tibia and fibula. Bony union occurred promptly in nine instances. However, solid union in the anatomic position, which is necessary for a good functional result, is known to have occurred in only three of the cases. Four fractures united in malposition, there was one nonunion, one patient cannot be traced, and one is wearing a brace.

Fig. 6 (case 2).—Five years after fracture occurred. Coxa vara has been corrected by osteotomy.

The diagnosis of fracture must always be excluded following injury to the hip. The positive physical signs are shortening of the limb of from one-fourth to three-fourths inch, prominence of the greater trochanter, which is elevated above Nélaton's line, and adduction and external rotation of the leg. A roentgenogram should be made in every case of suspected fracture. In children the fracture line is usually, as previously stated, at the cervicotrochanteric junction. Errors in diagnosis are due largely to failure to examine the small patient carefully. In untreated cases differentiation must be made between fracture and disturbance of growth in the upper femoral epiphysis.

TREATMENT OF RECENT FRACTURES

Two of the three recent fractures in this series, cases 2 and 4, were reduced and immobilized in the Whitman position. In case 4, a girl aged 6 years, a good result was secured. In case 2, a girl aged 13,

years, the Whitman method failed to give a satisfactory result and two subsequent operations were necessary to correct coxa vara deformity. In case 7, a boy, aged 6 years, a perfect anatomic and functional result was obtained by continuous well leg traction, the Hoke-Martin apparatus being incorporated in a plaster cast. Therefore, since angulation of fragments causing coxa vara is so imminent and results in such serious disability, it is recommended that all recent fractures of the neck of the femur in children be treated by continuous traction for eight weeks and that the limb be protected from full weight bearing for three months even after the patient is allowed to be ambulatory.

Fig. 7 (case 7).—Cervicotrochanteric fracture of the neck of the femur.

TREATMENT OF MALUNITED FRACTURES

In four of the patients the fracture united in malposition causing coxa vara deformity, shortening of the extremity and a limp with serious disability. The coxa vara deformity has been corrected and the femur lengthened in three of these patients (2, 5 and 6) by an oblique osteotomy of the femur followed by skeletal traction. The operation has been advised also in case 10, but the child's parents have not given their consent. In a boy aged 14 (case 3) there was nonunion of the fracture requiring a bone graft to the neck of the femur.

CONCLUSIONS

Fracture of the neck of the femur may occur in childhood and is probably not an uncommon accident, although it may be unrecognized until a later period.

The lesion may be one of three types: (1) epiphyseal separation, (2) transcervical fracture and (3) cervicotrochanteric fracture. The site of the fracture is usually at the cervicotrochanteric junction.

Bony union occurs promptly as a rule, but often with coxa vara deformity, which causes subsequent disability of a serious nature.

Treatment by continuous traction combined with immobilization of the hip in abduction is advised to prevent coxa vara and shortening of the extremity.

After union in malposition, great improvement in position and function may be secured by an oblique osteotomy of the femur, followed by skeletal traction.

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ABSTRACT OF DISCUSSION

DR. PAUL C. COLONNA, New York: Fractures of the neck of the femur in children occur far more frequently than is ordinarily thought; in the last ten years I have had eighteen. They followed the same general rule with regard to the history and to violence as a causative agent that Dr. Mitchell has pointed out. My patients ranged in age from 3½ to 15 years. The fractures have been, in the main, of two types. I am speaking not of the epiphyseal slippings or epiphyseal fractures but of fractures of the neck of the femur per se. These have been the incomplete and the complete fractures, the incomplete or the hinge type that Dr. Henry Ling Taylor described years ago being the more frequent. Fortunately, one can hear a discussion of fractures of the neck of the femur without feeling that one is going to be worried about nonunion. Union is the usual result in children, but union, unfortunately, in poor position many times. Many of these patients walk into the clinic or into the office presenting very little local symptoms of pain. In some instances the pain has been directly referred to the knee joint and no attention has been paid to the hip. I think that the mildness of the symptoms in the incomplete type is very striking. I have been accustomed to immobilizing these patients for at least three months, and I think that a longer period in plaster is sometimes advisable, as well as protection with a brace following the removal of the plaster.

DR. S. L. HAAS, San Francisco: There are two points I wish to bring out: One is the occurrence of nonunion in children; the other is the necessity of differentiating congenital coxa vara from fracture of the neck of the femur. A girl at the age of 10 years fell from a height and fractured her femur. Successful reduction was obtained by a physician in a small town in California. Subsequent to the reduction, the fragments displaced. Three years later the patient was seen at Shriners Hospital. There was no complaint of pain but there was a limp, a short leg and limitation of motion at the hip joint. The roentgenogram at this time showed nonunion of the fracture at the neck of the femur. Walking was possible, as the stump of the neck impinged on the border of the acetabulum. At the first operation the fibrous tissue was excised at the site of union and a small graft from the intertrochanteric region placed across the line of fracture. Osseous union occurred promptly. The existing coxa vara was corrected by a diagonal intertrochanteric osteotomy and traction in abduction. She obtained an excellent result, there being no shortening, no limp and a good range of motion. The other point I wish to bring out is the necessity of differentiating congenital coxa vara from fracture of the neck of the femur. A patient who gave a history of injury with subsequent limp and loss of motion at the hip joint had a definite defect across the neck of the femur, which was a congenital or developmental change. In this patient the films showed a similar condition on the opposite side. Careful study showed a small triangular area on the lower side of the neck which placed it in the type of coxa vara juvenilis. In unilateral cases this condition may be mistaken for a fracture. In this patient the area of maldevelopment of bone was exposed. The cartilaginous and osteoid tissue were excised and a graft was inserted across the defect. The coxa vara was corrected by a diagonal intertrochanteric osteotomy.

Fig. 8 (case 7).—Five months after fracture, showing bony union in anatomic alinement.

DR. RALPH G. CAROTHERS, Cincinnati: There is one point which has not been brought out but which I have had called to my attention a number of times, and that is a history of two accidents. "A boy fell out of a swing and bruised his hip, and a few days later he fell downstairs and broke his hip." That story has come too often to be disregarded. I believe these patients get a greenstick fracture and then get another one on top of it. One never sees a picture of the first accident, but in the majority of cases I have seen there have been two.

LATE INFECTION FOLLOWING THE USE OF PINS AND WIRES IN BONES

S. L. HAAS, M.D.
SAN FRANCISCO

Pins and wire are being used today with increasing frequency in bone surgery, and the practice has been held by many to be free from dangerous sequelae. Various ingenious types of apparatus have been

Fig. 1 (case).—Thickening and eburnation of cortex, two years after lengthening operation. Rarefied area found filled with granulation tissue. Small area containing polymorphonuclear and dead bone found on microscopic examination.

designed that require the utilization of pins or wire to obtain fixation and correction of alinement of fractures and for bone lengthening. Although I accept the use of pin or wire extension as an excellent means of obtaining reduction of certain types of fractures, I maintain that it is often used in the treatment of many fractures which could be easily handled by other efficient methods not demanding skeletal traction.

In spite of every aseptic precaution there is always the possibility of an infection when a metal pin or wire is inserted into a bone. There are no definite statistics, but there has been a considerable number of disastrous results following the use of wire or pins for traction. Extensive infections of the soft parts, persisting sinuses and osteomyelitis with sequestrums occur, at times necessitating extensive surgery and even amputations.

The indiscriminate and careless use of this method will increase the number of untoward results. Well can one remember the bad results following the promiscuous insertion of the Lane plate, so that today metal plates are being used in relatively few clinics, and then with special indications. It behooves the surgeon to be careful in his selection of cases for wire and pin traction so that this method also will not come into disrepute.

Even though the pins or wires are inserted under strict aseptic technic, the tract is potentially an infected one. Wires and pins have an external opening which in itself acts as a drain and gives some protection. On the other hand, the external opening serves as a portal of entry for bacteria. Fortunately, after the insertion of the wire or pin a defense barrier of granulated tissue is formed along the course of the wire and serves to inhibit infection. The prevention of motion is important in order not to injure this barrier and open up new avenues for the invasion of bacteria. For the same reason the pins or wires should be removed with aseptic technic and with the minimum amount of trauma.

After removal of the pin one finds a narrow, deep sinus, part in bone and part in soft tissue. The soft parts heal faster than the bone, so that there is formed a sealed off, firm, noncollapsing tube in the bone. With the hemorrhage produced on removal of the foreign body and the sealing off due to the more rapid healing from outside, one has the ideal set up for the incubation of latent bacteria. Fortunately this does not take place very often, and healing proceeds in an orderly manner. In a certain number of cases there is a slow healing of the wound, and a sinus may persist for a considerable length of time. Occasionally small sequestrums may discharge or one may be called on to curette the wound and remove these sequestrums.

Having escaped any trouble immediately after the removal of the pin, one is not sure that there may not remain within the bone some dormant infection that may light up at a subsequent date, even after many months. This is not merely a theoretical possibility but does actually occur, as is shown in the following experiences in lengthening operations of the leg (tibia and fibula). There were three cases of latent osteomyelitis in a series of seventy operations. Following the healing of the wounds and when it was thought that everything was normal there were mild symptoms

Fig. 2 (case 1).—Section of tissue removed at operation. The marrow has been replaced by fibrous tissue containing mononuclears. At one place there is a piece of dead bone surrounded by polymorphonuclear cells.

of pain followed by local signs of swelling and tenderness demanding operative intervention.

REPORT OF CASES

CASE 1.—G. O., a boy, aged 11 years, had had infantile paralysis at the age of 2 years. July 16, 1930, the tibia and fibula were lengthened in a routine manner. A single metal pin was used in each fragment. September 17, sixty-three days after insertion, the pins were removed from the leg. The healing was complete about two weeks later.

From the Shriners Hospital for Crippled Children.
Read before the Section on Orthopedic Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

April 9, 1931, seven months later, there was swelling at the upper pinhole. The roentgenogram showed what appeared to be a small sequestrum. The swelling subsided and there was no further pain.

July 21, 1932, about tweny-two months after healing of the pinholes, he began to have severe pain in the leg at night. Examination showed a little increase in the size of the tibia but no pain on pressure

September 22 he again began to have pain at night in the upper part of the tibia. Examination showed slight swelling and tenderness. Roentgenograms showed a heavy increase in density and thickness of the cortex of the upper end of the tibia. There were two areas of bone destruction within this region. The patient was then practically free from pain for about six months, when the leg once more became painful. There was some swelling but no redness, and slight tenderness on pressure.

March 26, 1933, two and one-half years after the lengthening operation, the patient was admitted to the hospital because of persistence of pain in spite of rest and protection. Examination showed an enlargement of the upper end of the tibia. There was no tenderness at this time and no fever. Roentgenograms showed what appeared to be two small sequestrums in an oval cavity 10 cm. from the knee joint (fig. 1).

April 3 an incision was made over the upper end of the tibia. The periosteum was found thickened with a considerable osseous reaction beneath it. The cortex was eburnated and thickened. After the cortex had been cut through, a cavity was found about 2.5 cm. in length. It was filled with granulation tissue, which was completely removed down to healthy bone. The overhanging edges were smoothed off, after which the cavity was washed out with ether. The skin was folded into the wound and a petrolatum pack was inserted. Plaster was applied. The patient made a good recovery with little reaction about or discharge from the wound.

Pathologic examination showed at one place dead bone surrounded by polymorphonuclear cells. The normal marrow

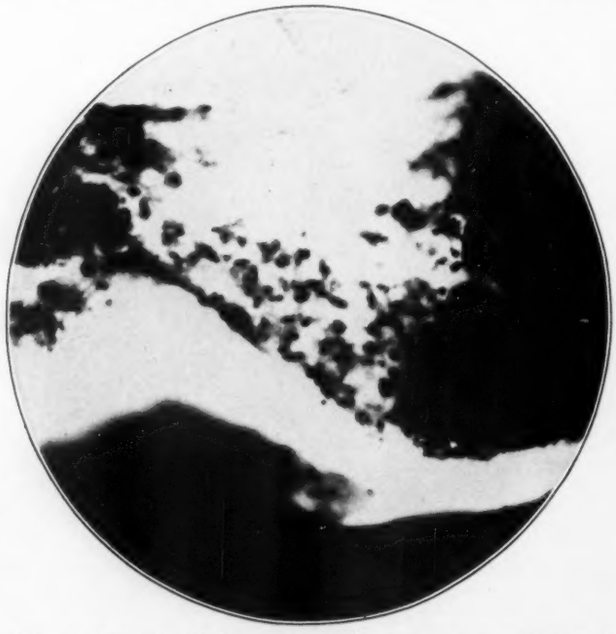

Fig. 3 (case 1).—High power magnification of area marked 2 in figure 2, showing dead bone surrounded by polymorphonuclear cells.

elements were replaced by fibrous tissue with a collection of lymphocytes, some of the plasma cell type. In places there was evidence of bone being regenerated (figs. 2 and 3).

Twenty-two months after removal of the pins, patient 1 began to have pain in the leg, which subsided gradually and remained quiescent for six months. Recurrence of pain demanded operation two and one-half years after removal of the pins.

CASE 2.—T. W., a boy, aged 13 years, had a short left leg following infantile paralysis. Stabilization of the foot and transplantation of the biceps into the patella had been performed on the left side.

Operation, March 11, 1931, consisted of routine lengthening of the tibia and fibula and the achilles tendon. Two pins were placed in the upper fragment and one in the lower fragment. By April 11, full degree of lengthening was obtained. May 11, two months after insertion, the pins were removed.

Feb. 11, 1933, about two years after the lengthening operation, the patient stated that he bumped his leg three days previously, after which it became sore and swollen. There was

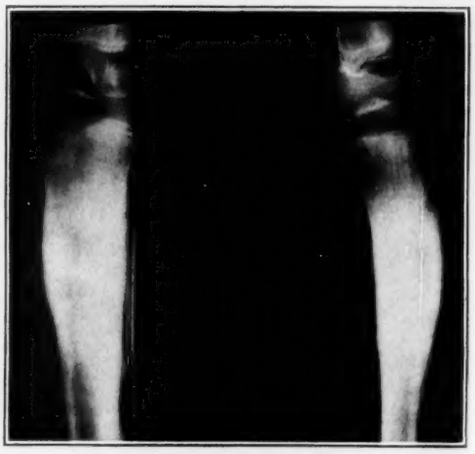

Fig. 4 (case 2).—Enlargement and increased density of the bone with rarefied area toward the medulla, two years after lengthening operation. At operation a cavity was found in the bone filled with granulation tissue.

a slight discharge near the upper pinhole. Swelling had subsided some and there was no pain when he was examined in the clinic.

March 23 the patient was admitted to the hospital because of returned swelling and discharge from the upper end of the tibia. Examination showed a fluctuating area 1¼ inches in diameter over the upper inner side of the left tibia and a small granulating sinus tract on the outer side. There was tenderness on pressure over the bone in this region. The temperature was within normal range. The roentgenogram showed marked thickening and increased density of the upper end of the tibia. There was a small rarefied area present toward the center (fig. 4).

March 24 the fluctuating mass was opened, from which place a sinus led down to the cancellous bone. There was a considerable amount of granulation tissue present, which was cleaned out. No sequestrums were found. The cavity was washed out with ether and packed with petrolatum gauze. Plaster was applied from the toes to the thigh. He had an uneventful postoperative course. Healing was not complete until September.

On pathologic examination there was some bone the nuclei of which were poorly stained. Some of the apparently dead or degenerated bone was surrounded by new bone. The marrow was replaced by fibrous tissue containing in places collections of mononuclear cells (plasma cells).

In case 2, two years after the lengthening operation it was necessary to drain an infected area in the upper end of the tibia.

CASE 3.—P. G., a boy, aged 10½ years, at the age of 9 months had had anterior poliomyelitis resulting in paralysis of the right arm and leg. At the time of admission he had 2 inches (5 cm.) of shortening.

Aug. 4, 1933, the right tibia and fibula were lengthened. Four bicycle spokes were used—two in the upper and two in the lower fragment. September 12, lengthening was completed. There was considerable reaction about the lower of the two upper pins. The highest temperature after operation was 38 C. (100.4 F.) and was normal after three weeks. The pins were removed sixty-five days after their insertion.

November 30, all areas were completely healed and the patient was sent home.

Sept. 5, 1935, two years after the lengthening operation, the patient returned, stating that he had recently bumped his right leg. Following this the bone became enlarged and was slightly painful. Examination showed enlargement of the upper end of the right tibia just below the site of the former pinholes. It was slightly tender to deep pressure. The roentgenogram showed an area of rarefaction in the upper end of the tibia. The bone was enlarged in this region and was very dense (fig. 5).

September 11 an incision was made in the upper portion of the leg, on the medial side. Dissection was carried down to the tibia, where a sinus tract presented through the periosteum. The tract was traced down and through the cortex to a cavity in the region of the medulla, which was filled with granulation tissue and a puslike material. The cavity was cleaned out, after which the edges of the cortex were tapered off. The skin and subcutaneous fat were folded in and sutured in place without drainage. A plaster was applied from the toes to the groin. Culture on plain agar gave no growth. The wound was completely healed, October 12.

The patient was last seen April 9, 1936, seven months after operation, at which time he stated that he had had no subsequent trouble. The leg looked normal and x-ray examination showed no evidence of disease of the bone.

Two years after apparent healing following a lengthening operation, patient 3 hit his leg. There was a swelling of the leg and some pain. At operation

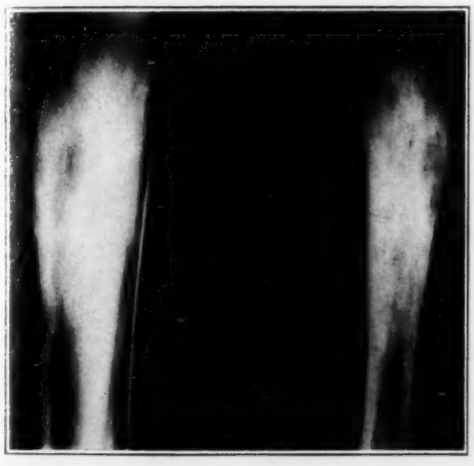

Fig. 5 (case 3).—Thickening of bone and increased density of cortex, two years after lengthening operation. Moth-eaten appearance of bone. At operation a cavity was found filled with granulation tissue.

granulation tissue was found in a rarefied area in the upper end of the tibia. No growth was obtained on plain agar.

COMMENT

The reported operations were all in children, in whom osteomyelitis is more prone to develop.

Trauma appears to have been an exciting factor in stirring up the latent infection.

The infection is usually in the cancellous bone near the metaphysis.

In lengthening operations there is greater force required than in most corrective procedures. The greater pressure may tend to produce necrosis of the bone, which in turn may favor infection.

There is less local disturbance if stainless steel wire is used in bone.

Pathologic examinations revealed evidence of a low grade infection. Small areas containing dead bone and pus cells were found in one case. The marrow was replaced by a fibrous tissue such as one sees in osteitis fibrosa. No definite sequestrums were found, but on microscopic examination there was evidence of necrotic trabeculae, some showing signs of regeneration about the periphery.

Operations on an extremity subsequent to the insertion of a pin or wire may be followed by an infection.

CONCLUSION

Pins and wires inserted into bone may cause immediate or late infection of the bone.

These latent infections may be stirred up by trauma several years after the insertion of the pins.

Skeletal traction with pins and wires should be limited to cases in which other methods are not as efficient.

450 Sutter Street.

ABSTRACT OF DISCUSSION

DR. ROGER ANDERSON, Seattle: This paper is very timely, as skeletal traction is widely used. The dangers that may occur must be kept in mind. Many infections occur at the time the transfixions are inserted and these can all be avoided if the proper technic is used. The Steinmann pin may be contaminated when it is removed from the sterilizer with the lifting forceps, which is frequently unsterile. When the sharp end of the pin is placed on the table it not infrequently penetrates the sterile sheet and thus becomes infected. This can be avoided by placing a cork over the point and attaching a handle to the opposite end of the pin before it is placed in the sterilizer. Thus, the transfixion is inserted without being touched by the gloved hand. Careful preparation of the sterile field is also essential. One of the frequent causes of late infections is the repeated observation and dressing of transfixion wounds. Sidewise motion of the limb on the transfixion will also result in an infection. These dangers can be eliminated by firmly incorporating the transfixions in a snug-fitting plaster cast. Another means of preventing infection from sidewise motion—paradoxically as it may seem—is to insert two transfixions at an angle to each other. An aseptic necrosis with discharge not infrequently results when too much traction is applied to the bone, such as occurs in bone-lengthening operations. This can be avoided by equalizing the traction with the insertion of two or more transfixions and incorporating them in the plaster cast. A wire improperly tightened is another source of danger. It has been my experience that the placement of the transfixions is an important factor. If the transfixions are placed closer to the joints, the structure of the bone in that area is such that it stands the traction better than when they are placed through marrow or dense cortical bone. Pulling of the skin against the transfixions will in time result in an irritation discharge and some pain. This can be avoided by extending the cast for some distance both above and below the transfixion. However, when it is advisable to obtain joint movement, this discharge and pain may be disregarded, as it is not a cause for concern. It is only an aseptic reaction and, if the limb is kept quiet for a few days, it usually subsides.

DR. W. K. WEST, Oklahoma City: At the University of Oklahoma Children's Hospital we have been using Kirschner wire traction in many types of orthopedic cases. We do not use Steinmann pins because our experience in the past has shown that the danger from infections, when pins are used, is much greater. We have had no late infections develop as described by Dr. Haas. We did have one case of primary hematogenous osteomyelitis develop around a wire which was being used to correct knee flexion in a case of poliomyelitis. This child developed a furuncle on the wrist and ten days later the infection invaded the upper part of the tibia—that portion of the bone which surrounded the Kirschner wire. The destruction was so extensive that we were positive that it was not an infection resulting from a local contamination. This is the only case of the kind we have seen. When wire traction is used in compound fractures, it frequently happens that local infection develops about the wires, but in all cases the bone sinus clears up within two or three weeks following removal of the wire. It is my opinion that wire traction has the most

important place in the prevention and correction of deformities. In the great majority of cases no reaction will take place because of its use, and in cases in which infection does develop the percentage of bad results is very small.

DR. SYLVAN L. HAAS, San Francisco: I have been doing lengthening operations for more than ten years. These three cases occurred during one year. Fortunately, I had none before and have had none since. I keep this in mind as a warning and hesitate to say that there will be no further trouble later on. With the pins and wires that are being inserted now, one might go along for a number of years and not have any trouble, but there is the possibility of a late infection in the bone.

RESULTS OBTAINED BY SUBCUTANEOUS PINNING OF FRACTURES THROUGH NECK OF FEMUR

AVERY ROWLETTE, M.D.; J. R. HASLEM, M.D.; R. B. SIEGERT, M.D.; H. D. MORRIS, M.D., AND J. ALBERT KEY, M.D.
ST. LOUIS

During the past five years, 380 patients who had fractures of the hip were admitted to the fracture service of the St. Louis City Hospital No. 1; 214 of these were trochanteric fractures and 166 were fractures through the neck of the femur.

The routine treatment for the trochanteric fractures has been suspension and traction in a Hodgen splint, and this method can be depended on to give a satisfactory result with bony union in good functional position in from eight to twelve weeks in those patients who survive. As will be mentioned later, our mortality in trochanteric fractures has been 37.7 per cent.

In the fractures through the neck of the femur neither the large abduction plaster-of-paris spica nor the treatment by traction has given satisfactory results in our hands. Consequently we have sought a method which we could use that would increase the percentage of union in these fractures and not greatly increase the mortality. We early recognized the value of the flanged nail of Smith-Petersen but found that the hospital administration objected to the expense of the nail and that very few of the patients could afford to pay for the nail. A further objection was that the introduction of the nail required an open operation, and we wished to avoid this if possible.

Having been impressed by the reports of Knowles [1] and Gaenslen [2] concerning their experiences with the methods of fixing the fragments by subcutaneous pinning and by the cheapness, simplicity and relative safety of the methods, we decided to use the methods as a routine on all fractures through the neck of the femur. The method of Knowles has been modified to the extent that the stainless steel pins are threaded and are screwed into the bone. This was because one of us (J. A. K.) had the unhappy experience of having a smooth pin back out in a patient who had several furuncles. Infection of the pin wound and eventually of the upper end of the femur occurred and death resulted.

The method used at present is as follows: After a preliminary hypodermic of morphine about 20 cc. of 1 per cent procaine hydrochloride is injected into the hip joint, the method described by Moore [3] being used of inserting the needle vertically to the surface of the thigh at a point 1 inch below Poupart's ligament and three-fourths inch lateral to the femoral artery. The patient is then placed on a fracture table and the hip is reduced by the Leadbetter [4] method: The thigh is flexed to 90 degrees and slightly adducted and externally rotated to unlock the fragments, and then traction is made directly upward in the long axis of the femur while an assistant pulls the upper thigh outward and downward to get the fragments in line and tighten the capsule around them. While the traction is maintained the thigh is circumducted outward and downward and internally rotated to bring the extremity down to the level of the table and in a position of moderate abduction and full internal rotation. Then the Leadbetter heel-palm test is applied. The heel of the abducted and internally rotated extremity is supported on the surgeon's palm. If the limb remains in internal rotation the reduction is considered satisfactory and the extremity is fixed on the fracture table, and anteroposterior and lateral roentgenograms are made. If the limb rolls outward the reduction is repeated until the internally rotated and abducted extremity can be supported on the palm of the hand.

While the films are being developed the skin below the trochanter is painted with iodine and it and the deeper tissues over the lateral surface of the thigh below the trochanter are anesthetized with procaine hydrochloride. The local anesthesia is carried down to the femur. When the films are developed and the reduction is found to be satisfactory, a stab wound is made in the skin at a level of about 3 inches (7.5 cm.) below the tip of the greater trochanter and a stainless steel pin or drill is inserted down to the femur. It is directed in a horizontal plane and upward at an inclination approximating that of the neck of the femur. In some instances the reduced hip was examined under the fluoroscope and the outline of the head and neck and trochanters of the femur were drawn on the skin with ink. This outline served as a guide in introducing the first pin. This drill or pin is one-eighth inch in diameter and 8 inches long and the end next to the point is threaded for a distance of about 1 inch. The pin is drilled into the bone for a distance of about 3 inches. Then anteroposterior and lateral roentgenograms are again made.

From the position of the first pin, as determined by the roentgenograms, the second pin is inserted. If the first pin is satisfactory, the second pin is inserted parallel to it and about one-half inch above or below it, depending on whether the first pin is nearer the lower or the upper border of the neck of the femur. Likewise, the depth to which the pin is inserted is determined, and if the first pin penetrates the head to about the desired degree an effort is made to insert the second pin to this depth. If the first pin is not deep enough or is too far into the bone, due allowance is made for this in inserting the second pin, and after the second pin is inserted to the desired depth the first pin is either driven in farther or withdrawn to the desired point.

If the angle or position of the first pin is unsatisfactory it is still useful as a guide, and from it the

From the Department of Surgery, Washington University School of Medicine, and the St. Louis City Hospital No. 1.

Read before the Section on Orthopedic Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Knowles, F. L.: Fractures of the Neck of the Femur, Wisconsin M. J. **35:** 106 (Feb.) 1936.
2. Gaenslen, F. J.: Subcutaneous Spike Fixation of Fresh Fractures of the Neck of the Femur, J. Bone & Joint Surg. **17:** 739 (July) 1935.
3. Moore, A. T.: Fracture of the Hip Joint—A New Method of Treatment, Internat. S. Digest. **19:** 323-330 (June) 1935.
4. Leadbetter, G. W.: A Treatment for Fracture of the Neck of the Femur, J. Bone & Joint Surg. **15:** 931 (Oct.) 1933.

correction for the second pin can be made. Then, after the second pin is in position, the first pin is withdrawn entirely and replaced parallel to the second pin.

When both pins are in position, final anteroposterior and lateral roentgenograms are made and, if necessary, the pins are either drilled in a little deeper or withdrawn to the desired point. Then the skin is pushed down around the pins as far as possible and the projecting end of each pin is clipped off with a pair of heavy bolt cutters which have been sterilized. The pressure is then released and the skin and subcutaneous tissues slip back into place, leaving the projecting ends of the pins deep in the thigh. A dry dressing is placed over the two stab wounds and the patient put on a fracture bed with the limb suspended in a Hodgen splint. As a rule, we have kept the patients in bed for three months and have left the pins in for from four to six months.

The principal danger associated with the insertion of the pins is that of getting them into the pelvis. It is said that one can tell by the feel when the pin enters the more dense head of the femur, but this has not been our experience and on three occasions a pin was drilled in too far and had to be partly withdrawn, and in the one postoperative death in our series the autopsy showed that the pin had penetrated the external iliac vein. Apparently the pin can be drilled through both articular surfaces and on into the pelvis without causing pain to the patient.

During the past eighteen months we have treated forty-six patients with fractures through the neck of the femur by the two pin method. In all but a few instances the reduction and pinning has been done by the resident in the fracture service at the time the patient came into the hospital, and the results here reported represent the work of six different surgeons. It is thus evident that our results with this method are about what an average surgeon who is qualified to

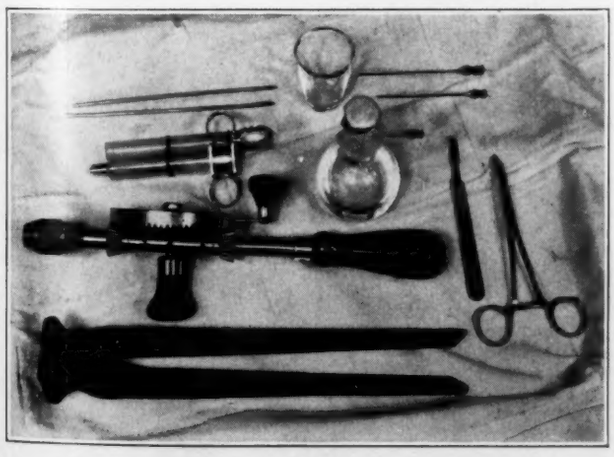

Fig. 1.—Material used in the two-pin method. There should be added a heavy mallet for impacting the fragments before the pins are inserted.

treat major fractures might be expected to obtain and are perhaps not as good as would be those of an expert who is especially skilful in using this method.

Of the total number of patients who have been treated by this method there are thirty in whom more than eight months has elapsed since the pins were inserted and of these it has been possible to trace twenty-nine. Of these, six have died, seven have nonunion, and in three the pins are still in and the fragments in good position, thus leaving thirteen in whom there is apparently firm bony union; that is, 45 per cent of the first twenty-nine cases have what appears to be firm bony union. If we subtract the six deaths, the incidence of bony union is 58 per cent. It is to be noted that only one of these fractures appeared to be impacted and that fractures at the base of the neck, where the neck is split off from the shaft, were treated as trochanteric fractures and are not included in this

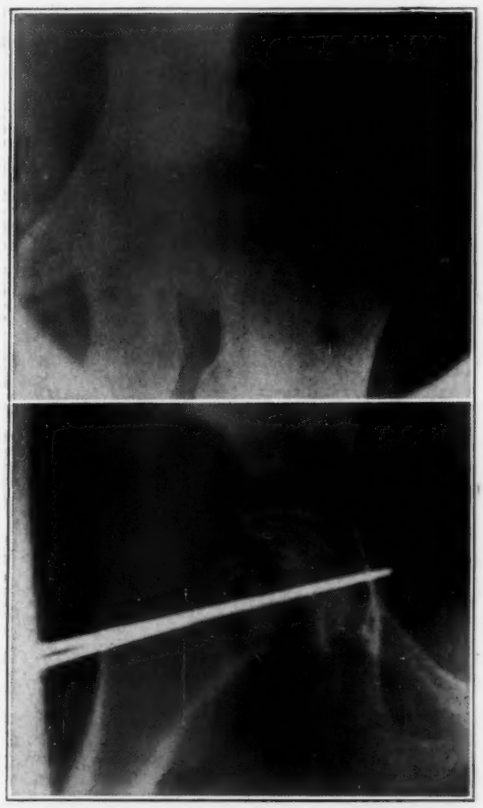

Fig. 2.—Above, fracture through the neck of the femur with moderate displacement. Below, same fracture after reduction and insertion of the pins. One pin has entered the pelvis and was withdrawn.

group; that is, all these were typical central or intracapsular fractures of the femur and in twenty-nine of them there was definite displacement of the fragments.

Of the remaining sixteen cases treated by the double pinning, but in which insufficient time has elapsed to judge the final result, there are three deaths and two cases in which, from x-ray appearance, we expect nonunion.

In analyzing our failures we have considered the following points as being responsible: (1) poor general condition of the patient, (2) poor reduction, (3) faulty insertion of the pins, (4) failure of the pins to remain in position, and (5) bending of the pins. Apparently the question of whether the head was adequately supplied with blood or not has had little to do with the success or failure of the method.

The failures due to poor general condition of the patients represent four of the six deaths in our series. In only one of these could the death of the patient be attributed to the method. The other death was due to heat stroke. Nine of the forty-six patients in whom the pins were used died. This is a mortality of 19.5 per cent, while the mortality of sixty-six patients in 1933 and 1934 who had similar fractures through the neck of the femur and were treated by traction or by the large abduction plaster cast was 28.7 per cent. This mortality is largely explained by the fact that these

patients averaged 64.8 years in age and were drawn from an underprivileged portion of the population, many of whom were poorly nourished and had little to live for. However, it is to be noted that our mortality by the two pin method is considerably less than it was in those patients who were treated by traction or by immobilization in the large abduction plaster cast. During the last five year period 126, or 33 per

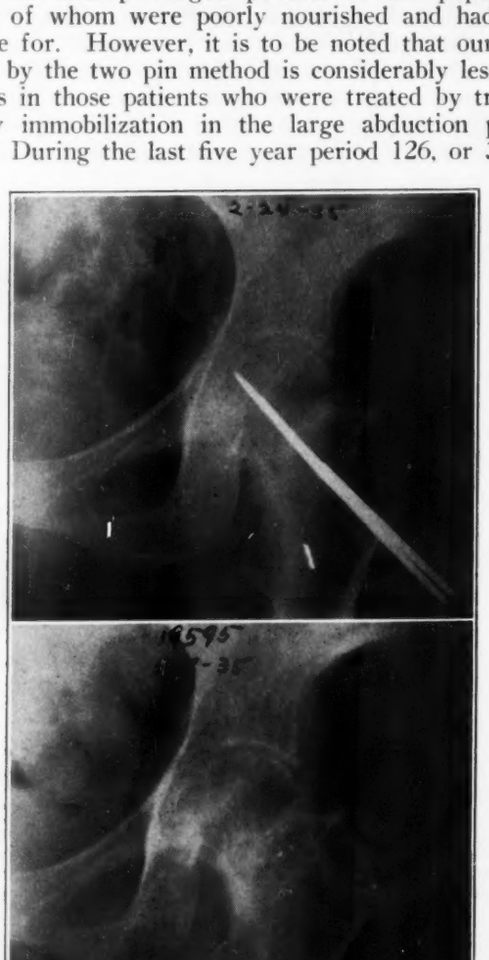

Fig. 3.—Above, same fracture two months after reduction and pinning. Below, five and one-half months after reduction and pinning. Firm bony union with head in slight valgus position.

cent of the 380 patients with fracture of the hip, died in the hospital. The cause of death was given as bronchopneumonia seventy-six, heart disease thirty, and miscellaneous twenty. The trochanteric fractures averaged 71.7 hospital days and the fractures through the neck of the femur averaged eighty-three hospital days.

The importance of the age factor is evident when one considers the trochanteric fractures treated in the same wards during the same years. Most of these patients were treated with the Hodgen suspension and traction method, and it has been our observation that patients treated by this method are relatively free from pain, can sit up or be propped up at will, and can move around in bed. Consequently, we would expect the Hodgen method to result in a minimum mortality in trochanteric fractures. Yet in forty patients with trochanteric fractures in 1935 the mortality was 45 per cent and of eighty-one patients of the same type who were treated during 1933 and 1934 the mortality was 39.5 per cent. The average age of 214 patients with trochanteric fractures was 66.6 years, with an average mortality of 38.7 per cent; the average age of 166 patients with fractures through the neck of the femur was 63.8 years and the mortality 25.9 per cent, a difference of 2.4 years and of 12.8 per cent in mortality.

Contrary to popular opinion, age does not appear to have any influence on union, but it does have a very definite influence on the prognosis as regards life. The average age of the patients with trochanteric fractures who died was 73.8 years, while the average age of those who survived was 60 years. In the neck fractures the average age of those who died was 71.2 years, while the average age of those who survived was 60.9 years. In addition to the age factor it is probable that increased mortality in the trochanteric fractures is partly due to the fact that, as a rule, the trauma and pain and hemorrhage into the tissues are more severe in trochanteric fractures than in fractures through the neck of the femur.

Unsatisfactory reduction has not been a very important cause of failure of union. The question naturally arises: What is a satisfactory reduction? Theoretically an exact anatomic reposition of the fragments is the most satisfactory reduction, and perhaps this is true; yet we believe that a better chance of union is produced when the head is placed slightly on top of the neck in a valgus position. In this position the shearing force is lessened and if the fragments are first impacted (as we are doing now) a more thorough impaction is possible than if one attempts to drive cortex into cortex, as would be necessary were an exact anatomic reduc-

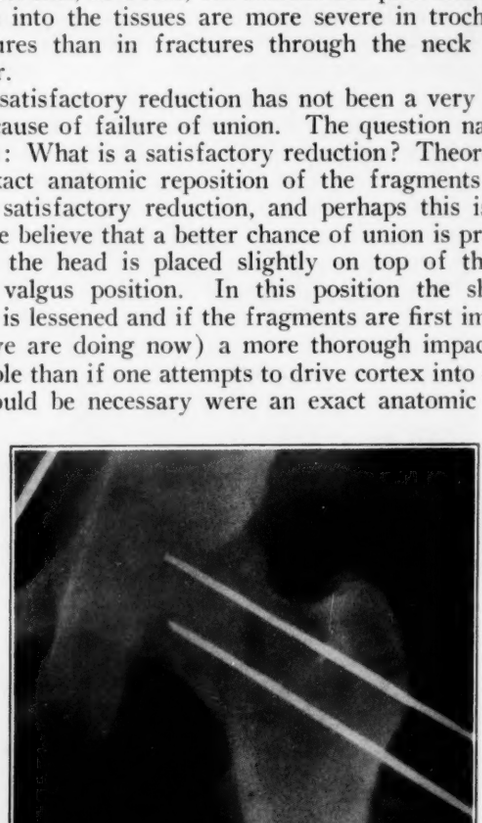

Fig. 4.—Above, comminuted fracture through the neck of the femur after reduction and pinning. The result was bony union. Below, first pin was inserted too high. Lower pins were in satisfactory position. The result was nonunion due to bending of the pins. Pins are now threaded for only 1 inch and are stronger. Also, impaction should have been done.

tion obtained. For this reason we apply strong traction throughout the Leadbetter maneuver and attempt to overreduce the displacement by pulling the distal fragment down slightly beyond its original level. On the other hand, union has been obtained in one of our cases in which the distal fragment was slightly higher than normal, thus in the slight varus position.

In no instance in which the heel-palm test was satisfactory has it been necessary to repeat the reduction. However, it is to be noted that apparently the heel-palm test is a criterion of a satisfactory lateral reduction, but not of the position of the head in the vertical plane, as with a positive heel-palm test the head may be in the valgus, normal or varus position. In our forty-six reductions the heel-palm test was positive in forty-five. In one instance it was necessary to hold the extremity forcibly in position while the pins were inserted, yet in this patient bony union occurred.

We have taken lateral roentgenograms in all our cases but have not paid much attention to them, and in not a single instance have we repeated a reduction because of the lateral roentgenogram. The chief value of the lateral view is in determining the position of the first pin.

Of the seven nonunions, one is believed to be due to unsatisfactory reduction. In three instances the first pin was inserted too far (into the acetabulum or pelvis) and had to be partly withdrawn, and in one of these the pin injured the external iliac vein and caused the death of the patient. In two instances one pin did not get a satisfactory hold on both fragments. Of the seven nonunions, two are believed to be due to a final faulty position of the pins.

In the great majority of our cases, not only have the pins remained in place but their removal at the end of six months has required the exertion of considerable force. In three instances one of the pins has become loose and two backed out and one wandered into the acetabulum. In one instance this is believed to have been a factor in the nonunion. We have encountered no instance such as that reported by van Ravenswaay [5] in which a pin wandered into the bladder.

In two cases the pins bent sufficiently after their insertion to permit displacement of the fragments and resulted in nonunion. The other nonunion is explained by us as being due to a dead head, but we know that under proper conditions union may occur in the presence of a dead head.

CONCLUSIONS

The two pin method can be used by the average surgeon who is trained to treat major fractures.

In such hands it tends to reduce the mortality in fractures through the neck of the femur.

In our hands thirteen, or 45 per cent, of twenty-nine patients with fractures through the neck of the femur who were treated by the two pin method obtained bony union. Of the remainder, six died, seven had nonunion and in three cases the result is still doubtful.

ABSTRACT OF DISCUSSION

DR. EDWIN W. RYERSON, Chicago: It is evident that this pinning of the fractured necks of the femurs will have to be treated with respect. When I first saw this method advocated and saw some of the immediate results, it didn't seem to me that it was mechanically sound or that it was likely to be free from danger, and as seen from this presentation, there are dangers connected with these operations. To speak of the mechanical proposition: It does not seem that two pins inserted through the upper end of an elderly person's femur and into a head which probably is not any too hard will give the mechanical stability and fixation that is required in such cases, unless external fixation by apparatus is used. I don't think that I should feel so safe in allowing a patient to lie in bed with only two small pins securing the head of the femur in place. But the results reported speak for themselves. In a very fair proportion of the authors' cases a bony union has been achieved in spite of what has been done. It is a matter for consideration that these femoral necks do not unite in two or three months. It takes four months for a good bony fusion of any fracture of the neck of the femur that I myself have had anything to do with, and I advise all orthopedic surgeons who operate by this method or by any method to keep patients from weight bearing for at least four months afterward. Up to this time it has seemed to me that the best fixation was the Smith-Petersen nail put in by the Johansson method, with a wire first and then the pin threaded on the wire and driven home. I am not enthusiastic about impacting these hips. The hip has been insulted sufficiently after it has been broken and after somebody has stuck a lot of wires up into it. Why insult

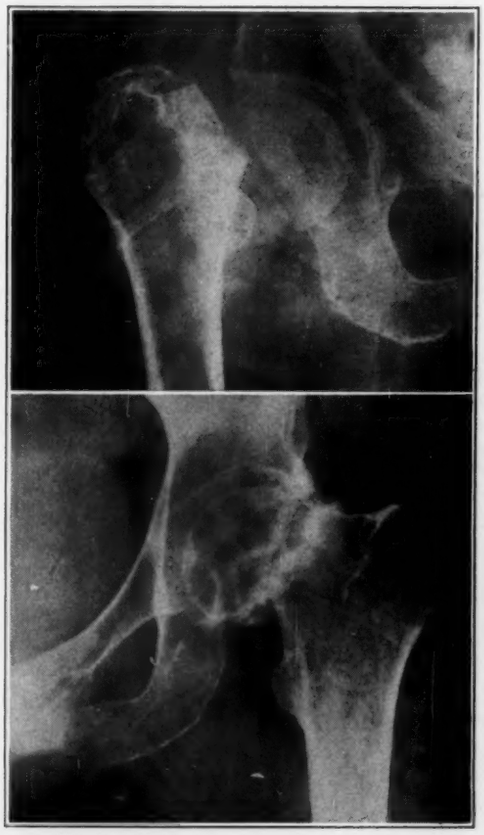

Fig. 5.—Above, nonunion due to poor position of the pins; upper pin did not get a firm grip on the head of the femur. Below, union with coxa vara. In spite of the bending of the pins, bony union was obtained with moderate absorption of the head. The hip is painful.

the hip any further by beating it with a mallet? It will unite if one doesn't impact it. It will unite if one gets it in good position and keeps it there long enough, no matter what method is used. The pin fixation is simpler than the other methods, but I don't think that it is as safe as a Smith-Petersen nail. I don't think that either of these types of fixation is as likely to be successful in a large majority of cases as an autogenous bone graft put up through the neck of the femur, preferably a piece of fibula. It will be necessary to wait a good many years and see more and more of the late results. I heartily congratulate the authors on their success in so many cases and on their admirable carpentry. In all the literature on the subject there is a surprising number of cases in which the pin didn't go in the right place. Why it didn't was bad carpentry, and in most cases it is due to the fact that it isn't put in low enough down below the trochanter. Years ago everybody spoke of putting pins through the trochanter. One should forget the trochanter and put the pins up through the shaft of the femur, well below the trochanter and at as acute an angle as possible, and every time the muscles pull on that fractured hip they will jam the fragments together without any artificial impaction and

5. van Ravenswaay, Alexander: Steel Pin Inserted into the Neck of the Femur Found in Bladder, Am. J. Surg. **31**: 566 (March) 1936.

will make the bones stick together better and more firmly, by far, than if the pin is put in at a more obtuse angle.

DR. FRED KNOWLES, Fort Dodge, Iowa: The presentation of fifty cases of internal fixation of fractures of the neck of the femur gives an excellent view of the results possible in the use of internal fixation. The results from external fixation have been so uniformly bad in such a high percentage of cases that internal fixation has received serious work from several surgeons in the United States. The teaching of Kellogg Speed that intracapsular fractures of the neck of the femur require from nine months to three years for complete bony reconstruction focused the attention of surgeons on the fact that external fixation could not possibly be maintained over this long period. Internal fixation has been advocated by Dr. Albee of New York with the autogenous bone peg, by Dr. Smith-Petersen of Boston with the Smith-Petersen nail, by Dr. Moore of Columbia, S. C., with the three pins, by Dr. Gaenslen of Milwaukee with multiple pins, and by the method I have used for three and a half years, double parallel pinning, using one-eighth inch chrome nickel steel pins with a shoulder. The authors have changed this technic by threading the pins. Out of this comparatively early work on internal fixation undoubtedly will come more uniform technic, and I believe that parts of several of these methods will be eventually adopted which can be carried out by the general surgeon. There should be several more years of work and perhaps thousands of cases studied with a better classification of the types of fractures, relative to results obtained and compatible with the various ages of patients, before final decision can be made as to what has proved to be the best operative technic. To the present I have operated on thirty-eight patients ranging from 50 to 89 years of age, with the average age of 71 years. This has included both intracapsular and intertrochanteric fractures, taking all cases as they come. The average mortality age has been 77 years, and only one death, at the age of 89, has been definitely due to fracture of the hip. Counting the living patients, I have had union in 92 per cent of the cases. The two points that definitely establish internal fixation, in my opinion, as being far better than external fixation are a much higher percentage of union and a far greater comfort to the patient during the entire period of convalescence.

DR. FRED J. GAENSLEN, Milwaukee: I have observed seven or eight cases of impacted fracture of the neck with very transient and very mild support all going on to bony union and normal function. The reason why these patients get well with little or no external support is that, first, reduction is practically perfect, second, immobilization is absolute by reason of the impaction and, third, these patients move the extremity very early, thus insuring a good blood supply. In the spiking operation or internal fixation by any adequate method, the same principles obtain. Accurate reduction is a prime essential. If the fracture cannot be reduced properly, fixation with a Smith-Petersen or any other kind of nail is useless. If a satisfactory reduction is obtained and one succeeds in placing the spike securely and in proper position, immobilization is complete and the patient is able to move the leg early, thus facilitating circulatory repair. A slight valgus deformity is not objectionable. In fact, it is rather desirable because of the mechanical advantage of more perpendicular weight bearing. The technic is not difficult if one follows definite rules. I am coming to believe that more difficulty is encountered in properly reducing the hips than in the introduction of the spikes. Staking out of the trochanter with long Keith needles is most helpful. With a little experience and careful study of the angle of the shaft and neck, the degree of anterior torsion and the length of the neck, the spikes are introduced without difficulty and are checked up with the x-rays. As far as impaction is concerned, if one will try on the cadaver to impact a fracture of the neck one will be greatly surprised that it is practically impossible because the cortex of the neck is thick and hard. I have stopped trying to impact. There are dangers, of course, in this and in other forms of treatment of fracture of the neck. Mortality statistics run from 20 to 30 per cent. I feel that if a satisfactory reduction is obtained and if the spikes hold efficiently for three or four months the case will go on to union. The paper of Dr. Key and his associates is an excellent one which should encourage orthopedic surgeons in the use of internal fixation, a method which I believe is efficient and here to stay.

DR. KELLOGG SPEED, Chicago: It seems to me that there is some confusion existing in our minds between ways and means and results. One man talks of one pin or two pins, and another of a screw and a third of 3 or 4 cm. of necessary penetration, and so on. We are apparently losing our way as to what we are really after. What we want to get is an ordinary, harmless way that the profession as a whole may use to care for or possibly cure fractures of the neck of the femur. Last year I had the temerity to describe these fractures as "the unsolved fracture," to the amusement of surgeons, colleagues and friends. But I still believe that the problem is unsolved, and the fact is illustrated by the outburst of these papers and this very well worth while discussion of the ways and means of attempted cure. The primary requisites in treatment still remain, as most of the speakers have confessed, apposition and immobilization. In Chicago we find that quite a long immobilization is necessary. Is this method or is any method, then, that we discuss here, still the final method? I suggest that judgment be withheld until the last word has been said. In the meantime, each one of us should study the problem along the line of a hobby or belief, and eventually, perhaps years from now, a proper method will be found to be employed by all caring for these fractures. I have heard discussions like this as far back as thirty-five years ago, when J. B. Murphy of Chicago first introduced the nailing of the hip, frequently successful, often not successful.

DR. J. ALBERT KEY, St. Louis: We tried out this method because we are not able by the Whitman plaster or by traction or by any other method to get results which are, to us, satisfactory. These are not satisfactory either, but they are a lot better than we have been able to get any other way. All are familiar with the literature about 50 per cent union in intracapsular fractures treated by the Whitman method; some men think it higher. I myself have never been able to get it in noninfected fractures. I know that in the City Hospital at St. Louis I couldn't find any of them that united. We are looking for a method that can be used by the ordinary man. Only two of these hips were pinned by me: the first two. All the others were done by the resident, whoever happened to be on. We think, at least I think, that the average man who can do major fracture work can have better luck in putting in these two pins than he can in putting on a Whitman plaster. A Whitman plaster sounds simple; but to put it on and keep it on a patient for four months and have the patient survive is a very difficult thing. As to the insult of impaction, we don't insult after we put the pins in. We think that impaction should be done first, and then, after the patients have survived the impaction, we put the pins in. Our mortality has been cut down about 35 per cent by this method, in the same hospital. As to the question of reduction, I don't think reduction is so important if one gets the fragments together. It isn't necessary to have anatomic reduction. In fact, as I stated here, I would much rather not have an anatomic reduction. I don't believe in the ring that Dr. Knowles has mentioned because I don't know how long a pin is going to be necessary. I have to drill it in until I can see in the roentgenogram how far it is. With regard to the pin backing out through the skin, I had that happen once. The only difference between his patient and mine was that mine died; his apparently got well. When they come through the skin now, we take them out.

Nature of Thirst.—If we survey the foregoing evidence as a whole we are led to the rather banal conclusion that thirst is what it seems to be—a disagreeable sensation due to drying of the mucous membranes of the fauces and pharynx. The real interest in localizing the origin of thirst at the back of the mouth is found in the relation of the salivary glands to that area. The area, set where the moving air tends to dry it, is normally kept moist by secreted saliva—a liquid which is almost pure water. If the salivary glands do not have water supplied to them they cannot function, the area dries and we experience thirst.—Cannon, W. B.: Digestion and Health, New York, W. W. Norton & Co., Inc., 1936.

CHOLANGIOGRAPHIC DEMONSTRATION OF BILIARY DYSSYNERGIA

AND OTHER OBSTRUCTIVE LESIONS OF THE GALLBLADDER AND BILE DUCTS

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OMAHA

Although during the last fifteen years definite advances have been made in the diagnosis of lesions of the biliary tract, we not infrequently are unable to appreciate the relation of the common bile duct to the patient's complaint. It is true that biliary surgery gives very gratifying results in most instances, but it is that group of patients whose response has not been entirely satisfactory which concerns us. Cholecystograms, as sponsored by Graham and Cole,[1] furnish valuable evidence regarding the gallbladder, but they are of little value in disturbances of the common bile duct. Elsewhere in the body, tubular organs can be injected with radiopaque solutions that graphically outline such organic changes as tumors, stones, strictures and inflammation and depict any variation in activity or motility resulting from functional disturbances. It is our purpose in this paper to present clinical and x-ray evidence of spasm of the lower end of the common duct, which we have termed biliary dyssynergia, and to describe the method of diagnosing other obstructive lesions of the extrahepatic bile ducts by injecting opaque substances into the biliary tract. We also offer some experiences in the management of these conditions.

For the past two years, we have been visualizing the biliary tract by injecting radiopaque fluids into the common duct during operation. This method has been called immediate cholangiography. The injection of radiopaque substances postoperatively, through catheters, tubes or fistulas, has been designated delayed cholangiography.

TECHNIC

A satisfactory contrast medium produces a clear outline and is nonirritating to the tissues. After experimenting with many contrast solutions we have found lipoiodine, thorium dioxide sol and hippuran to be the most suitable; however, each of these has its advantages and disadvantages. These solutions must be absolutely sterile and must be warmed to 120 F. at the time of injection.

Lipoiodine-Ciba is a nonirritating iodized oil which apparently exerts a soothing, therapeutic influence in the common duct. We have not hesitated to use it in the face of biliary infection complicated by high temperature. Being an oily solution, lipoiodine is very viscid and some difficulty may be encountered in injecting it into the biliary tract through a small bore needle, as is necessary in making an immediate cholangiogram. If a large caliber needle is used, the oil seeps out the puncture wound and infiltrates the extraductal tissues, thus giving a hazy, indefinite cholangiogram. After considerable experience we have concluded that this solution is so dense that the smaller stones in the common duct may be obscured.

Thorium dioxide sol is a labile solution and gives an excellent pattern of the bile ducts. Some authors have asserted that it has carcinogenic properties but to date no authentic report of this occurrence has been made, even though it has been used intravenously as a diagnostic aid in hepatic, splenic and vascular lesions in a rather large series of cases. We believe that this fear is unwarranted and have used thorium dioxide sol freely.

Hippuran is a 48 per cent aqueous solution of organic iodide and has proved to be a very satisfactory cholangiographic medium.

IMMEDIATE CHOLANGIOGRAPHY

In 1932 Mirizzi[2] suggested that the common bile duct could be visualized at the operating table by injecting it with radiopaque substances. During the past two years we have developed several methods of obtaining satisfactory cholangiograms, and our experience indicates that the site for injection may vary with the case.

Fig. 1.—A normal immediate cholangiogram taken at the operating table.

Site of Injection During Operation Without Sacrificing the Gallbladder.—1. The most direct method consists of injecting about 20 cc. of the radiopaque solution directly into the common duct, which has been isolated and steadied with Allis clamps or two small sutures. A 22-gage needle on a "Lok" syringe is used. The clamps are then removed and gauze is placed lightly against the puncture wound. If the duct is dilated it may be necessary to aspirate its contents before the injection is made.

2. Another method is the injecting of 40 cc. or more of the contrast medium directly into the gallbladder

From the Departments of Surgery and Anatomy, University of Nebraska School of Medicine.

Read before the Section on Surgery, General and Abdominal, at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Graham, E. A., and Cole, W. H.: Roentgenographic Examination of Gallbladder: New Method Utilizing Intravenous Injection of Tetrabromphenolphthalein, J. A. M. A. **82**: 613-614 (Feb. 23) 1924.

2. Mirizzi, P. L.: Cholangiografi durante las operaciones de las vias biliares, Bol. y. trab. de la Soc. de cir. de Buenos Aires **16**: 1133-1161 (Oct. 5) 1932.

after the bile has been aspirated. A clamp or suture seals the puncture wound. This method is unsatisfactory if the cystic duct is occluded.

Site of Injection at Operating Table with Sacrifice of the Gallbladder.—1. A very satisfactory technic is to clamp and divide the cystic duct, remove the clamp, and inject about 20 cc. of contrast medium into the stump of the cystic duct with a small cannula or blunt needle. This method is most useful if the common duct is thickened and the cystic duct is dilated.

2. Not infrequently the cystic duct is very small and cannot be probed successfully. In this event the cystic duct is ligated, and injection is made into the common duct, which has been steadied with Allis clamps or fine sutures.

3. In some instances the cystic duct is isolated and the neck of the gallbladder is exposed and clamped in such a manner that a needle can be inserted below this point. The clamp prevents the contrast medium from

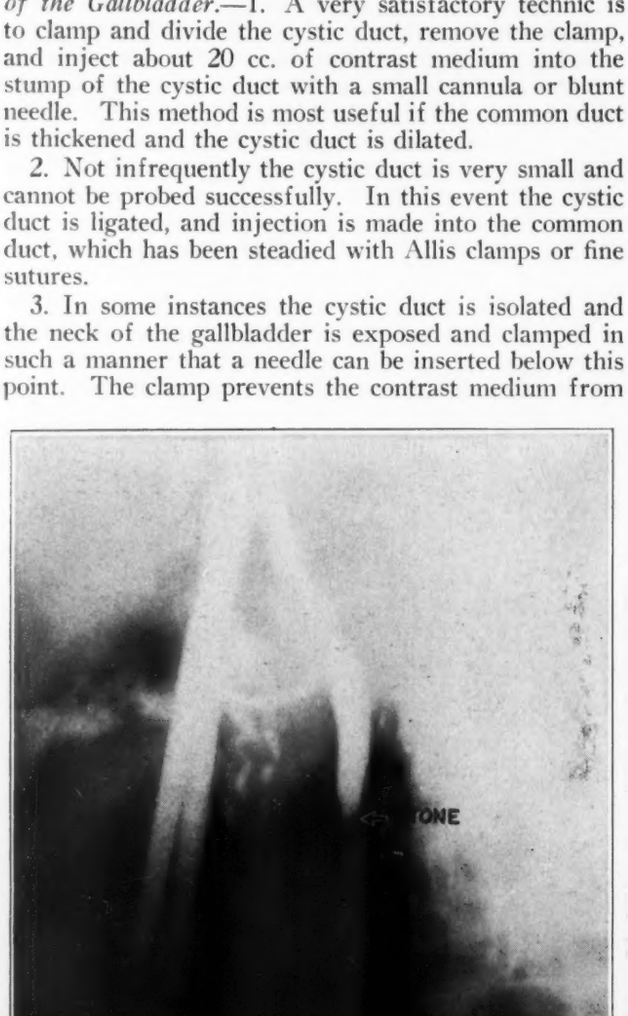

Fig. 2.—An immediate cholangiogram depicting a small stone at the lower end of the common duct which had not been palpable.

invading the gallbladder. After the needle has been withdrawn, the puncture wound is momentarily clamped to prevent leakage.

X-Ray Technic.—Before the operation is begun a wooden tunnel containing a 14 by 17 inch film is placed beneath the patient. At times a cystoscopic table has been used. After the contrast medium has been injected all clamps are removed from the wound, including the towel clips at the upper angle of the incision. A large sterile sheet is then thrown over the operative field, the operator and assistants step aside, the portable x-ray machine is wheeled into place and the picture is taken. The film is immediately developed and interpreted and the operation is then continued.

DELAYED CHOLANGIOGRAPHY

We have found repeated check-up cholangiograms definitely valuable in ascertaining why biliary fistulas have failed to close and in demonstrating stones, strictures, angulation or spasm of the common duct. In all cases in which tubes or catheters have been left in the gallbladder or common duct, between 20 and 50 cc. of contrast medium is injected on about the third postoperative day, and these injections are repeated as necessary.

STUDIES IN IMMEDIATE CHOLANGIOGRAPHY

1. *As an Aid in Diagnosing Elusive Common Duct Stones.*—Lahey [3] and Clute [4] have definitely demonstrated that the incidence of common duct stones in cholelithiasis has almost tripled since they have increased their explorations of the common duct rather than depending on palpation. Experience has proved that unnecessary choledochostomies may be avoided by making roentgenographic visualizations of the common duct at the operating table (fig. 1). This method has revealed the presence of stones when palpatory evidence was negative (fig. 2).

CASE 1.—Mrs. S., aged 45, had repeated attacks of pain in the right upper quadrant referred to the right shoulder and associated with nausea, gas and an aversion to fatty foods. She had never been jaundiced nor had the pain necessitated morphine. Physical examination revealed obesity with tenderness over the gallbladder region. The gallbladder did not concentrate the dye and the icteric index was normal. At operation the gallbladder wall was thickened and several stones were palpable. The common duct appeared about normal size, no stones were palpable and the head of the pancreas felt normal. A cholangiogram was made at the operating table by injecting 20 cc. of thorium dioxide sol into the stump of the cystic duct. The film revealed a small negative shadow near the lower end of the common duct. Choledochostomy disclosed a single small stone.

2. *As an Aid in Diagnosis of Pancreatitis or Tumors of the Head of the Pancreas.*—We believe that these give rather definite pictures when they compress the common duct, although the differentiation from spastic closure of the lower end of the common duct would prove difficult at times.

CASE 2.—Mrs. S., aged 68, had complained of indigestion and intolerance for greasy foods for many years. About two months before admission she began having pain in the right upper quadrant, which radiated to the shoulder. During the last two weeks she had suffered from nausea, vomiting and jaundice associated with clay colored stools. On physical examination the patient was found to be obese, jaundiced, dehydrated, acutely ill and very tender over the right upper quadrant, with liver margin down about three fingerbreadths. After ten days of preoperative observation and preparation, a cholangiogram at the operating table revealed a dilated common duct with an obstruction at its lower end. No evidence of stone was found and the picture was not typical of stricture or spasm. The cystic duct was patent. A cholecystogastrostomy was carried out.

3. *To Determine Patency of the Cystic Duct.*—We have assumed that certain types of bile in the gallbladder were significant of a patent cystic duct and, if a cholecystogastrostomy was indicated, one had little fear of an inadequate short-circuiting operation. However, on two occasions we have proved that the contrast medium did not reach the hepatic or common bile duct, although we felt that we were dealing with a patent cystic duct. This may be one explanation for the high mortality in such operations, in that the procedure does not decompress the biliary system and the

3. Lahey, F. H.: The Incidence and Management of Stones in the Common and Hepatic Ducts, Tr. Am. S. A. **51**: 164-169, 1933.
4. Clute, H. M.: Common Duct Stones, J. A. M. A. **95**: 1568-1570 (Nov. 22) 1930.

patient has to carry the insult of operation as well as the original pathologic condition (fig. 3).

CASE 3.—Mr. B., aged 65, presented a history of vague subcostal pain following meals for one year. He became nauseated and vomited every evening, was slightly jaundiced, and lost 40 pounds (18 Kg.) during this time. Physical examination revealed general abdominal tenderness and a mass in the epigastrium. After ten days of preoperative observation and preparation, a mass the size of an egg was found at the lower end of a greatly dilated common duct. Heavy dark bile was aspirated from the distended gallbladder, about 30 cc. of lipoiodine was injected, and an immediate cholangiogram revealed the cystic duct to be occluded. However, a cholecystogastrostomy was done in the hope that our cholangiogram was in error or that some valvular obstruction or edema in the region of the cystic duct would be released after decompression of the gallbladder. At autopsy ten days later, the cystic duct was still occluded.

4. *The Effect of Spinal Anesthesia on the Choledochal Sphincter.*—In our early investigations we believed that the sphincter was relaxed under spinal anesthesia, but fortunately we were wrong. If the sphincter relaxed it would be impossible to obtain a satisfactory immediate cholangiogram, because the contrast medium would immediately enter the duodenum. Its contraction under spinal anesthesia is well demonstrated in practically all immediate cholangiograms.

STUDIES IN DELAYED CHOLANGIOGRAPHY

1. *Demonstration of biliary dyssynergia.* Our histologic studies reveal practically no muscle tissue in the cystic, hepatic or common ducts. At the lower end of the common duct, however, there exists a concentration of muscle tissue termed the sphincter of Oddi. This sphincter, like those of the stomach and colon, has an innervation derived from the sympathetic and parasympathetic systems, and it is probably subject to similar disorders of function, in particular, spasm or hypertonicity. For some years authors have described gallbladder colic existing without stone or infection and have frequently reported cases of jaundice with no apparent obstruction to account for the dilated common duct.

In 1887 Oddi,[5] in his original description of this choledochal sphincter, was of the opinion that spasm of this sphincter of the ampulla might be the cause of biliary colic or icterus in some patients. The work of Meltzer[6] and Lyon[7] with magnesium sulfate on the duodenal mucosa also suggests the occurrence of this spastic phenomenon. In 1922 John Berg,[8] a Swedish surgeon interested in biliary colic without stone or infection, proposed that functional disorders of the biliary passage might be the cause of biliary stasis and supported his contention by observations of hypertrophy of the muscle at the lower end of the common duct. Nuboer[9] and Newman[10] have also observed this hypertrophy. Westphal,[11] in 1923, went so far as to classify disorders of motility of the biliary tract into the hyperkinetic and atonic types. In 1933 Ivy, Voegtlin and Greengard[12] further substantiated the existence of this phenomenon by a series of experiments on human beings. They found that an injection of secretin-cholecystokinin was generally followed by a copious flow of pancreatic juice and bile which could be recovered through a duodenal tube. In three out of nineteen normal subjects studied, bile was not recovered after the injection and the patients suffered right hypochondrial distress, which became so severe that relief was sought. The introduction of magnesium sulfate into the duodenum resulted in immediate alleviation of the distress and in a few minutes bile was recovered from the duodenum, thus indicating that the choledochal sphincter had relaxed.

These experiments suggested that the existence of this sphincterismus of spastic dyssynergia could be confirmed by roentgenographic visualization of the common duct. Therefore, in a series of gallbladder cases, postoperative injections of radiopaque solutions were made through a small catheter left in the cystic duct. Similar studies were instituted in all cases with common duct catheters, T tubes or fistulas. We have found spastic biliary dyssynergia to exist in 15 per cent of the patients in our series of seventy-five. This can best be exemplified by presenting actual cases (fig. 4):

Fig. 3.—Carcinoma of pancreas. Immediate cholangiogram also reveals a cystic duct obstruction. Cholecystogastrostomy proved to be of no value.

CASE 4.—Mrs. M., aged 52, experienced typical gallbladder distress for ten years with several attacks of severe colic but no jaundice. Examination was negative except for slight tenderness in the right subcostal area. In cholecystographic studies the gallbladder appeared distended and contained several small stones, and the wall was moderately thickened. The wall of the common duct was also slightly thickened, but there was

5. Oddi, Ruggero: D'une disposition à sphincter speciale de l'ouverture du canal cholédoque, Arch. ital. de biol. **8:** 317-322, 1887; Sulla tonicita dello sfintere del coledoco, Arch. per le sc. med. **12:** 333-339, 1888.

6. Meltzer, S. J.: Diseases of the Bile Ducts and Gallbladder, Am. J. M. Sc. **153:** 469 (April) 1917.

7. Lyon, B. B. V.: Diagnosis and Treatment of Diseases of Gallbladder and Biliary Ducts, J. A. M. A. **73:** 980 (Sept. 27) 1919.

8. Berg, John: Studien über die Funktion der Gallenwege unter normalen und gewissen abnormen Verhaltnissen, Acta chir. scandinav., suppl. 2, pp. 1-185, 1922.

9. Nuboer, J. F.: Studien über das extrahepatische Gallenwegssystem, Frankfurt. Ztschr. f. Path. **41:** 454-511, 1931.

10. Newman, Charles: Physiology of Gallbladder and Its Functional Abnormalities, Lancet **1:** 785 (April 15), 841 (April 22), 896 (April 29) 1933.

11. Westphal, K.: Muskelfunktion, Nervensystem und Pathologie der Gallenwege: I. Untersuchungen über den Schmerzanfall der Gallenwege und seine ausstrahlenden Reflexe, Ztschr. f. klin. Med. **98:** 22-150 (Jan.) 1923.

12. Ivy, A. C.; Voegtlin, W. L., and Greengard, Harry: Physiology of Common Bile Duct; Singular Observation, J. A. M. A. **100:** 1319-1320 (April 29) 1933.

no evidence of gross dilatation, stone or neoplasm. The head of the pancreas was normal. Exploration of the common duct released a thick, dark brown, tenacious bile, laden with flakes of biliary pigment. Examination with scoop and probes demonstrated a pseudo-obstruction in the region of the sphincter. On stronger pressure the probe suddenly slipped into the duodenum, indicating that some impediment had been overcome. Twenty-four hours following operation, 40 cc. of lipoiodine was injected into the common duct and the roentgenogram revealed a pronounced dilatation of the entire biliary tree with a cone-shaped narrowing at the lower end of the common duct. There was no evidence of stone or stricture. Twenty-five minutes later the apparent spasm was still present, for the lipoiodine had not escaped from the biliary tract. In three hours there was a slight trickle of oil into the duodenum. At forty-eight hours the biliary tract was practically free from the contrast medium. During the latter part of the injection, and as the tube was clamped, the patient complained of distress similar to her gallbladder attacks.

CASE 5.—Mrs. W., aged 41, had had typical gallbladder disease for five years, associated with severe colicky pains and deep jaundice. She was operated on and a gallbladder filled with pea-sized stones was removed; twenty-two pea-sized stones were also removed from the hepatic and common ducts. Within

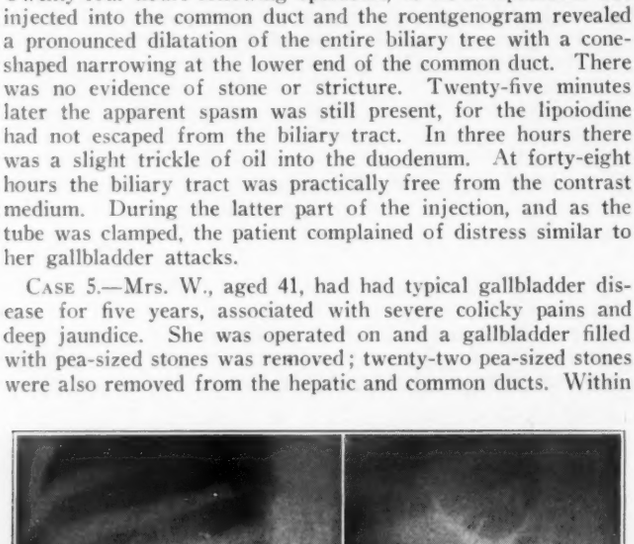

Fig. 4.—A delayed cholangiogram depicting spasm of the lower end of common duct (left). A 1: 100 glyceryl trinitrate tablet was given and five minutes later spasm had disappeared (right).

four months the attacks of colic, jaundice and high temperature recurred. Eighteen months later she submitted to a second operation. When the common duct was opened, thick pus was encountered and a large soft calculus was removed. The lower orifice of the duct was patent and a T tube was inserted. Postoperative hemorrhage into the wound was a troublesome factor. On the tenth postoperative day the biliary discharge had a bloody tinge and on the twelfth day the T tube had become blocked, the stools were acholic and the jaundice was increasing. A few days later, at a third operation, a blood clot was removed from the common duct. The lower end of the duct was definitely patent at this time. Following this procedure the stools remained acholic and there was a free flow of bile through the common duct catheter and later through the fistula. Clamping the catheter and packing the fistula did not force bile into the duodenum and always caused severe distress within a few hours. Antispasmodic drugs did not alter the situation, and after forty-five days of a complete biliary fistula and acholic stools a cholangiographic study with lipoiodine evinced a definite obstruction at the lower end of the common duct, not suggestive of stone but rather typical of choledochal sphincter spasm. A roentgenogram taken three minutes later showed a few drops of oil in the duodenum, and a third roentgenogram, taken in twenty minutes, disclosed that the lipoiodine had escaped from the common duct and was within the jejunum. Within twenty-four hours the fistula was closed, the stools were of normal color, and now, more than a year later, the patient has had no recurrence of biliary obstruction.

It has been very noticeable in our cases that the spasm of the sphincter of Oddi was in no way correlated with the degree or type of pathologic condition of the gallbladder or common duct. One may venture that in some instances spasm is the prelude of biliary or pancreatic disease and is followed by stasis and infection. Again, in those cases in which the lower end of the common duct is atonic and the contrast medium immediately passes into the duodenum, regurgitation of infectious duodenal contents into the common duct might well be the source of biliary or pancreatic disease. Experiments by Brendolan [13] show that section of the sphincter of Oddi in dogs frequently results in ascending biliary infection.

The hypertonic type of dyssynergia occasions pain because of increasing pressure. This was frequently demonstrated during injection of the opaque medium against the spastic sphincter. Patients with atonic dyssynergia did not complain of distress.

2. *Demonstration of the cause of persistent biliary fistulas.*

CASE 6.—Mr. B., aged 56, had a cholecystostomy performed four months previously at which several small stones had been removed from the gallbladder. There had been intermittent drainage from the site of operation, and, when it was not draining, colic and epigastric pain ensued. This sinus was injected with 60 cc. of lipoiodine and a roentgenogram revealed an irregular spiral-shaped shadow obstructing the cystic duct. No oil reached the common duct. Here was rather conclusive evidence that an obstruction at the cystic duct prevented the gallbladder from emptying. Operation revealed a well organized bile-stained mucous plug occluding the cystic duct.

Injections of other persistent biliary fistulas have revealed stones remaining in the cystic duct or draining sinus, strictures and spasm of the sphincter of Oddi.

3. *Aid in diagnosis of remaining stones, mucous plugs and the like.*

CASE 7.—Mrs. K., aged 35, suffered attacks of pain in the right upper quadrant radiating to the scapula, severe enough to require morphine, and associated with gas, nausea and vomiting. One month previous to admission she had her first attack of jaundice. Physical examination revealed marked jaundice with tenderness and rigidity in the right upper quadrant. After a week's preoperative preparation and study the gallbladder was found to be a sclerotic mass adherent to the common duct with a fistulous communication existing between them. A stone the size of a marble was removed from the common duct and catheters were fixed into both the hepatic and the common duct. A cholangiogram taken on the fifth postoperative day was negative. On the eighteenth postoperative day there was a negative shadow in the region of the ampulla, which on a second cholangiogram a few hours later was shown to be movable within the common duct. This was interpreted as a mucous plug or stone, and the patient was forewarned. She returned home feeling well but one month later had an attack of terrific pain in the upper part of the abdomen. A year has now passed and she has had no further trouble, and it is possible that she passed this foreign body during the attack.

4. *To ascertain patency or deformity of the common duct following operative procedures or injuries.*

CASE 8.—Mrs. G., aged 29, accidentally had the common duct severed by a surgeon during a cholecystectomy. This was repaired over a T tube and we were permitted to make follow up cholangiograms, which demonstrated that the radiopaque substances passed freely into the duodenum and, after removal of the tube, common duct continuity was present.

13. Brendolan, G.: The Immediate and Late Effects of the Section of the Sphincter of Oddi, Arch. ital. di chir. **40**: 529, 1935.

5. *As an aid in determining the degree of cholangiectasia and time for removal of common duct catheter.* We believe that this is most important in all cases in which common duct drainage has been established, for until the biliary radicles and ducts have somewhat approached normal size the tubes should not be removed. We have found irrigation with warm physiologic solution of sodium chloride or warm olive oil most beneficial. Warm lipoiodine seems to have some therapeutic value also.

THERAPEUTIC CONSIDERATIONS

During the injection of the radiopaque substances in those cases in which spasm of the sphincter of Oddi existed, the pain experienced by the patient was typical of the biliary distress or colic existing before operation. On some occasions, after the injection of the warm oily contrast medium through T tubes or catheters, the sphincter relaxed almost immediately and at other times the spastic condition was not relieved. In case 5, in which spasm was apparently the cause of acholic stools and a persistent draining biliary fistula for a period of forty-five days, the spasm was relieved by instillation of warm lipoiodine on the choledochal side of the sphincter and now, eighteen months later, it has not recurred. Of late, in all cases presenting biliary catheters or fistulas, irrigation with warm olive oil or saline solution is done and when the status of the sphincter is checked up, lipoiodine is used. For ruling out the presence of a foreign body in the common duct, thorium dioxide sol or hippuran is substituted for reasons stated previously. Attempts are also made to relax the spastic sphincter with atropine, belladonna or magnesium sulfate instilled through the duodenal tube, but not infrequently these drugs fail. We also use olive oil or pure cream night and morning, as suggested by Ivy. A combination of these treatments may also relieve the common duct of any foreign body such as mucous plugs and small stones.

In our first experiments we were at a loss to understand why morphine and atropine did not achieve the desired relaxation of the sphincter except in isolated instances.

At this time we began more enthusiastic treatment of some of our gallbladder cases in which operation had been done some years before with not entirely satisfactory results. We found that the foregoing therapeutic measures produced startling improvements in some instances, while in others the desired benefits were not obtained. Of course in these cases we were not sure whether we were dealing with spasm, stone, mucous plugs or stricture of the common duct. One man was also subject to angina pectoris and during some of these attacks felt that he was having pain over the gallbladder region which was quite similar to the distress he had before operation. He had used glyceryl trinitrate tablets for these attacks and volunteered the information that the soreness over the gallbladder region was also greatly relieved by the glyceryl trinitrate. These tablets were then prescribed to several other patients, who seemed to get partial or complete relief. This appeared only empirical, but in the next two cases of spastic biliary dyssynergia that we could demonstrate with cholangiograms we were able to prove that $\frac{1}{100}$ grain (0.0006 Gm.) glyceryl trinitrate tablets by mouth relaxed the spastic sphincter of Oddi (fig. 4). If we clamped off the drainage catheter or packed the fistula so that distress was present, immediate relief was usually obtained.

SURGICAL CONSIDERATIONS

If drugs or diet can be used to control the spastic state of the choledochal sphincter without too much inconvenience to the patient, such surgical procedures as choledochoduodenostomy or sphincterostomy are not indicated. It is perfectly plausible, however, that surgery for spastic biliary dyssynergia may some day be part of the management of certain of these cases. Some type of neurectomy may also prove advantageous.

SUMMARY

1. Spastic biliary dyssynergia has been demonstrated by means of cholangiograms and may be considered a definite clinical entity.

2. Glyceryl trinitrate tablets, magnesium sulfate, atropine, belladonna, cream, olive oil and various oily radiopaque substances have very evident therapeutic value at times in spastic dyssynergia.

3. When possible, postoperative irrigation of the common duct with oils and saline solution is of value.

4. Immediate cholangiograms are a definite aid in diagnosis and may prevent complicating circumstances which arise from incision and exploration of the common duct. The status of the cystic duct can also be ascertained.

5. Delayed cholangiograms are an aid in determining the status of the choledochal sphincter, the presence of overlooked stones, stricture and tumor, and the presence of pancreatitis or tumor of the pancreas, and also help determine when sufficient time has elapsed for biliary drainage.

6. The choledochal sphincter is as a rule in a contracted state under spinal anesthesia.

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ABSTRACT OF DISCUSSION

DR. FRANK H. LAHEY, Boston: Up to 1926 I was unhappy because of the number of stones in the common duct which were being overlooked in our clinic. I therefore advocated further investigation of common ducts. Up to 1926 we had operated on 619 gallbladders, opened the common duct in 15 per cent and found stones in 8 per cent. Up to last year we had operated on 2,000 gallbladders, opened the common duct in 44 per cent, and in the last third of the cases found stones in 18 per cent of the cases. It thus becomes obvious that previous to 1926 we were leaving a stone in the common duct in probably one in every ten patients on whom we operated. It is therefore of great interest to hear this paper. Any improvement in the method of distinguishing the possible presence of common duct stones is of great value. When one realizes that in 39 per cent of the cases in which we found stones in the common duct no jaundice was present at the time, or had been present in the history, one must admit that no dependence can be placed on some of the past criteria for the presence of stones in the common duct. When one leaves behind a stone in the common duct it is probable that one has left the stone that is causing the symptoms, and certainly the stone that is most likely to bring about a fatality. For this reason, I feel sure that stones in the common duct should be investigated more than has been done in the past. I have not felt the need for this method of investigation. Dr. Charles G. Mixter at the Beth Israel Hospital in Boston has employed it, and thinks well of it. What is needed is a definite set of criteria as to when common ducts should be investigated, and ours are these: jaundice, or history of jaundice with cholelithiasis, a contracted gallbladder, a thickened common duct or a dilated common duct, a lump that is in any way a possible stone, a thickened head of the pancreas. It does not add to the mortality to open the common duct. It is necessary to provide conditions that will permit those stones to pass on. For that reason I have welcomed the appearance of the Bakes sphincter dilators. They run up to 14 mm. in diameter and can be passed through the sphincter of Oddi. It is not

safe to dilate them to 14 mm. I have reported the occurrence of two ascending gas bacillus infections in such cases, but it is safe to dilate the sphincter up to 9 mm. and then to wash any small stone down into the duodenum. The important fact to remember concerning cholelithiasis is that if one finds 18 per cent proved common duct stones in cholelithiasis, one must admit that patients have not been operated on early enough because common duct obstruction is the result of long standing cholelithiasis. What is necessary is to educate medical men not to carry their cases of cholelithiasis through repeated attacks but to submit them to operation earlier while the stones are still in the gallbladder. Then there will be a lower mortality and better end results.

DR. WALTMAN WALTERS, Rochester, Minn.: Mirizzi, Bartlett, Thiessen and I, and Best and his associates have demonstrated the value of a study of the physiology of the common bile duct using the visual methods of fluoroscopy and roentgenography. Our interest in the method was stimulated by Mirizzi's interesting monograph "La cholécystectomie sans drainage (cholécystectomie idéale)," published in 1933. After using the method at the operating table on a few occasions we discarded it as being too time consuming. It did not yield sufficient additional information beyond that which could be obtained from the anatomic and pathologic changes to warrant its continuation. However, its use subsequent to operation has been of inestimable value in cases in which the common bile duct has been opened and explored and closed around a small T-tube. Two and a half weeks after operation the T-tube is injected with 10 cc. of brominol, which is opaque to roentgen rays, and a roentgenogram is taken immediately. Ten minutes later two additional roentgenograms are made. Although, fortunately, to date we have not found any cases in which it would appear that a stone persisted in the common bile duct, we have found that in some cases of pancreatitis there was persistent narrowing of the lower end of the common bile duct interfering with proper drainage of bile into the duodenum, and that in an occasional case reflux into the duct of Wirsung could be demonstrated. In some cases, also, a partial stenosis or spasm in the region of the sphincter of Oddi was causing stasis within the common bile duct. Space permits only the briefest reference to this problem of pancreatitis and malfunction of the sphincter of Oddi. In regard to the pancreatitis, if persistent narrowing of the common bile duct continues after a period of from six to eight weeks of T-tube drainage (at which time the T-tube would have ordinarily been removed), and the choledochograms show continued retardation in the emptying time of the common duct, the T-tube should be left in for an additional period until complete subsidence of the stasis, demonstrable roentgenographically, occurs. In this particular type of case it seems to me that the practical value of choledochograms is apparent.

Mary Baker Eddy and Dr. Francis Lieber's Manuscript.—The newly discovered Source Document, a deeply thoughtful philosophic discussion of Hegelianism by a German-American, at last brings to the light of day what a discerning scholarship should have detected long ago—namely, that Mrs. Eddy was the mouthpiece, however distorted, for the ghost of the distinguished German philosopher Georg Wilhelm Friedrich Hegel. The contention is not that she plagiarized in all her writings, for a considerable part of what she produced bears her own indubitable mark. But the fact is irrefutable that the chief doctrinal points, the main ideas in Science and Health, including the major portion of the "Scientific Statement of Being," are appropriated verbatim from this antecedent statement, the newly discovered Source Document. This remarkable essay from which Mrs. Eddy so extensively appropriated proves to be a manuscript of 8,200 words, comprising a philosophical treatise on Hegelian Metaphysics, by the justly celebrated man of letters Dr. Francis Lieber. The Lieber Manuscript gains distinction as one of the most notable documents in the history of American letters; for Lieber's summation of Hegel's philosophy became none other than the basis of Science and Health.—Haushalter, W. M.: Mrs. Eddy Purloins From Hegel, Boston, A. A. Beauchamp, 1936.

SEGMENTAL NEURALGIA IN CHILDHOOD SIMULATING VISCERAL DISEASE

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CLEVELAND

In the past five years I have observed in a group of 250 children the various manifestations of a pain syndrome that seems to be commonly misinterpreted, most commonly as an evidence of visceral disease. I have seen it called acute appendicitis, chronic appendicitis, renal colic, ureteral stones, gallstones, pleurisy, colitis, and the like, without any subsequent developments to warrant these diagnoses. I have seen it confused, in certain of its aspects, with arthritis, bursitis, tenosynovitis and other types of pain affecting the extremities.

The fact that the distribution of this pain was always segmental would seem to divorce these cases from a serious consideration of visceral disorder. That very fact, on the contrary, is commonly interpreted as irrefutable evidence of its visceral origin, especially by those who have been trained in the infallibility of the viscerosensory reflex.

Since my own observations in these children failed to establish any evidence of visceral disease, and since all of them recovered without surgical intervention, I began to cast about for an explanation of segmental pain that would apply more consistently than the classic theory of Mackenzie [1] and Head.[2]

I think I have arrived at such an explanation, an explanation based on a perfectly simple mechanism and quite in harmony with the most modern concepts of disease. It will be well, in attempting to build up this theory, to bring out the details of history, symptoms, examination, treatment and results in this group of children as I have observed them.

GENERAL DESCRIPTION

The material for this study was derived from the roster of the Cleveland public schools and from the clinics of the University Hospital. It includes those children, more than 250 in number, who voluntarily sought out the doctor because of pain, the prime feature of the disorder. The age range of the group was from 6 to 16 years. The great majority of the children so affected were between the ages of 12 and 16 years. Most of them were boys, but largely because there were more boys than girls available for observation. In mixed groups there seemed to be no greater incidence in the one sex than in the other.

They were recruited largely from the underprivileged and lower middle classes, yet to casual inspection they seldom were undernourished. None of the children gave a significant history or evidence of vitamin deficiency or allergic disturbance. In fact, there was nothing unusual about any of them that could not be duplicated in their fellows who were unaffected.

The history, with respect to the onset of symptoms, is especially significant, since it brings to light a second important feature of the disorder; i. e., infection. Fully

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From the Department of Pediatrics, Western Reserve University School of Medicine.

Read before the Section on Pediatrics at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

1. Mackenzie, James: Associated Pain of Visceral Disease, M. Chronicle **16**: 295, 1892; Symptoms and Their Interpretations, London, Shaw and Sons, 1909.

2. Head, Henry: A Disturbance of Sensation, with Special Reference to the Pain of Visceral Disease, Brain **16**: 1-122, 1892.

90 per cent of the group had had recently an infection of the upper respiratory tract, varying in severity from a simple cold to influenza with prostration. In the majority, the infection seems actually to have been mild. Not infrequently it accompanied the onset of pain but more often preceded it by one to two weeks. The seasonal incidence of the disorder has corresponded consistently with the "cold season," and the peak incidence with that of cold epidemics. The remainder of the group (10 per cent) was divided about equally between those children who had had some trauma previously and those whose history was not significant in any way. Curiously, however, these patients came to my attention only during the time when the disorder was prevalent generally.

The characteristic symptomatology always featured pain, which was variously described as "tingling," "sticking," "sharp" or "burning." It often was mild, in fact so mild that it might not have come to a doctor's attention except in a free dispensary. Just as often it was severe, paroxysmal or lancinating, a source of genuine discomfort to the patient and a problem in differential diagnosis to the attending physician.

The pain commonly was localized in the anterior abdominal wall (75 per cent) in the area supplied by the ninth, tenth, eleventh and twelfth dorsal segments. In a much smaller group (10 per cent) it was limited to the thoracic wall in the distribution of the fourth to the eighth dorsal segments. In the remainder of the group (15 per cent) it was distributed in the more bizarre areas supplied by the cervical, upper dorsal, lumbar and sacral segments. In 60 per cent of all the cases the pain was unilateral; in the remaining 40 per cent it was bilateral.

In a few of these cases, vomiting occurred as an initial feature of the disorder accompanying the onset of the pain. None of the patients complained of headache or dizziness. There was no fever except in the preliminary "cold" phase, and no motor disturbances or weakness other than the natural limitations of movement resulting from pain.

The clinical signs consisted of cutaneous hyperesthesia and hyperalgesia in the affected areas, as well as irregular pain reactions to pressure. In a few instances hypesthesia was noted, usually after a fairly long period of hyperesthesia. In these cases, however, the children complained of the same tingling and lancinating pains as did the children generally.

The presence or absence of hyperesthesia and hyperalgesia was determined by the simple device of stroking with an applicator, a cotton pledget or a piece of paper across the pathway of the spinal nerves or by pinching with the thumb and forefinger along the distribution of the nerve trunks. Ordinarily, by this method, the borders of hyperesthesia were so sharply delineated, and conformed so remarkably to the sensory zones, that no one could seriously doubt their accuracy or their segmental distribution. An exception was noted, however, in those cases in which the involved segments were supplied through the cervical, brachial and lumbosacral plexuses, where there was ordinarily some confusion as to the exact limitation of the pain area, a confusion that seems natural enough in consideration of the complex distribution of the root fibers.

Pressure, as I have remarked, was often productive of pain, especially deep pressure in the paravertebral area. In fact, pressure anywhere along the course of the sensory trunk was likely to elicit pain. However, on the anterior abdominal wall it did not ordinarily elicit muscle guard and rigidity as in appendicitis.

There were several miscellaneous observations, aside from these characteristic ones, that would seem to be worthy of mention. For instance, there was no evidence in any of the group of a pleural friction or other signs of chest involvement. There was no case in which the abdominal or other reflexes on the affected side were lost or impaired. There was ordinarily no diminution or exaggeration to hot and cold stimuli, two-point perception or vibratory sense. In a few cases however an exaggerated response, and in some few others a diminished response, to these particular stimuli was noted.

There were only six instances in which the skin was visibly affected. A typical herpes zoster developed in two boys of the more than 250 children in the series. Four others manifested a slight flushing and a peculiar velvety texture of the skin within the pain area.

Perhaps the most significant observation was the discovery of a band of hyperesthesia and hyperalgesia in two boys who had been operated on for appendicitis, the one three years, and the other one and one-half years before the current onset of symptoms. This

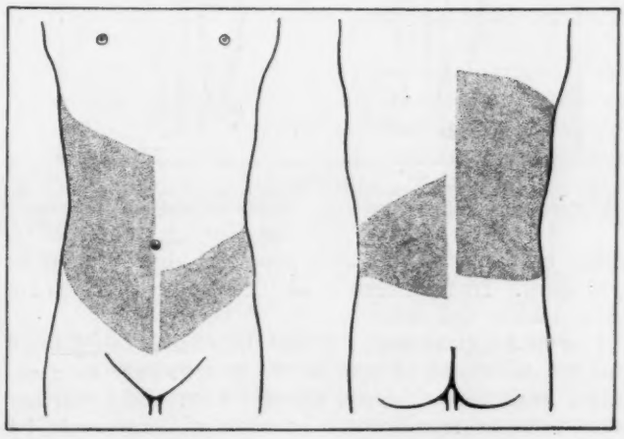

Fig. 1 (case 1).—Distribution of cutaneous hyperesthesia—a common type.

shows as does no other evidence that an appendix is not necessary to initiate the pain, that another mechanism than the viscerosensory reflex can produce cutaneous hyperesthesia.

In a few selected cases, examinations of the blood and spinal fluid, and cystoscopic and roentgenographic studies yielded normal results.

The treatment of the disorder is simple. It consists of the local application of heat, mustard plasters or other counterirritants and the oral administration of the common sedative and analgesic drugs. With such treatment the symptoms subside in from two to four weeks in the majority of instances; without treatment the duration is likely to be longer, from four to eight weeks. A few cases persisted with remissions and exacerbations for from four to eight months. The prognosis, in any event, is always good; the course is apparently self limited.

One boy remarked about the immediate cessation of symptoms following a lumbar puncture, though he had no increase in spinal fluid pressure, globulin or cell content. Two girls had abrupt and complete relief following the removal of infected tonsils. Another girl had similar relief after the extraction of several carious teeth.

Other types of treatment that have been suggested include (1) injection of the posterior nerve roots with alcohol, which I have not tried; (2) the use of light roentgen irradiation over the point of emergence of the affected nerve trunks, which was employed in a limited number of cases with no apparent relief, and (3) the empirical administration of large doses of brewers' yeast by mouth. This too has been done in a small group of cases without any apparent improvement in symptoms. In fact, certain of the patients grew worse while taking the yeast.

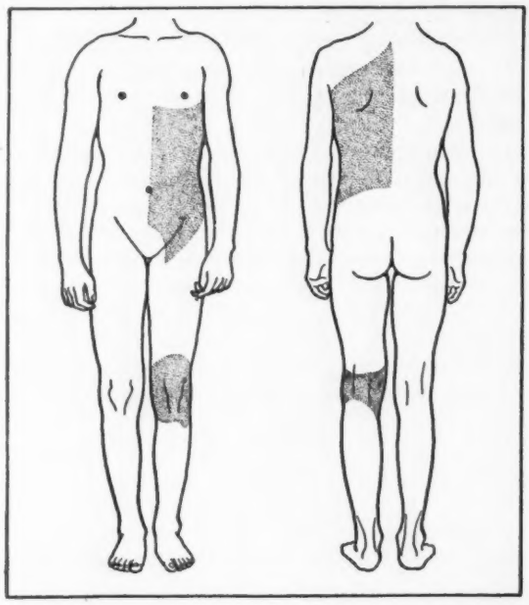

Fig. 2 (case 3).—The relationship of the area of hyperesthesia in the knee is apparent when the proximity of the affected ganglions is considered.

It would appear then that the disorder is self limited and not influenced by specific or other therapeutic measures, except as I have noted. One thing further stands out as significant. In spite of statements by certain children that they have had pain for from three to five years, I myself have seen fewer than 5 per cent of them in a second attack. Hence it would seem that immunity is likely to follow after one attack of the disease.

REPORT OF CASES

CASE 1.—A girl, aged 13 years, had had recurrent attacks of abdominal pain for about a year. The pain was usually on the right side and ordinarily was accompanied by vomiting. The patient complained of frequency of urination but not of dysuria or hematuria. Recurrent throat infections had preceded the attacks of abdominal pain. In the University Dispensary it was thought that she had some renal disease, and so she was referred to the Pediatric Division for study.

The blood was normal. The tuberculin test and the Wassermann reaction were negative. The spinal fluid was clear and contained no globulin and no cells. Cystoscopic examination, intravenous pyelograms and repeated urine cultures yielded nothing abnormal.

After hospitalization for one month, the segmental distribution of the pain was noted and cutaneous hyperesthesia and hyperalgesia were demonstrated in the affected area. The history of frequent sore throats was thought to be significant and removal of the tonsils was advised. Within one week after tonsillectomy the pain disappeared. After more than one year there has been no recurrence of any of the symptoms.

CASE 2.—A girl, aged 9 years, was first seen in the University Dispensary, April 16, 1934, complaining of a sharp, burning pain in the left side. After two days the pain disappeared, but it reappeared shortly thereafter, this time on the right side. The child complained of nausea and vomited once. The history brought out the fact that these symptoms had been preceded by a moderately severe sore throat and cough, which, however, had cleared up completely before the onset of the pain.

There was quite definite cutaneous hyperesthesia in the distribution of the seventh to twelfth dorsal segments and in the first lumbar segment, accompanied by slight voluntary spasm and moderate tenderness to light palpation over the entire right side.

It was arranged to hospitalize the child for study, April 23. Examinations of the blood and spinal fluid and roentgenograms of the kidneys, ureters and bladder showed nothing abnormal.

One week after admission, a mild throat infection and moderate nasal discharge developed. Simultaneously exquisite tenderness appeared in the right thigh and knee, accompanied by skin hyperesthesia in the distribution of the second, third and fourth lumbar segments. All treatment was unavailing until the carious teeth were extracted. Within five days the pain in the knee was relieved. In a week all cutaneous hyperesthesia had disappeared. Some months later the child reported that she had had no recurrence of pain in the abdomen or knee.

CASE 3.—A boy, aged 13 years, was studied in the hospital for five days in March 1933 because of a dull pain over the left side of his body and in his left shoulder following a sore throat, fever and swollen cervical glands. Occasionally he remarked about sharp, lancinating pains induced by coughing, deep breathing, quick movements of the body and walking. Examination revealed a marked skin hyperesthesia and hyperalgesia in the distribution of the first to the twelfth dorsal segments and in the third and fourth lumbar segments.

All ordinary blood studies yielded normal results. The tuberculin test and the Wassermann test were negative. The spinal fluid pressure was slightly increased. The fluid itself was clear, contained two cells and no globulin.

The patient improved so markedly after lumbar puncture that no medication was administered.

CASE 4.—A colored boy, aged 12 years, was first seen April 9, 1935, nine days after the outbreak of a typical herpes zoster. He had almost intolerable "burning" pain in the two or three days preceding the eruption. Inspection revealed the typical vesiculation of herpes zoster in the distribution of the third and fourth dorsal segments on the left side of the thorax. Examination brought out a sharply defined band of hyperesthesia and hyperalgesia extending from the third to the eighth dorsal segments. The lower border of this band was well below any of the evident skin lesions, which suggests a lesser degree of involvement of these particular segments.

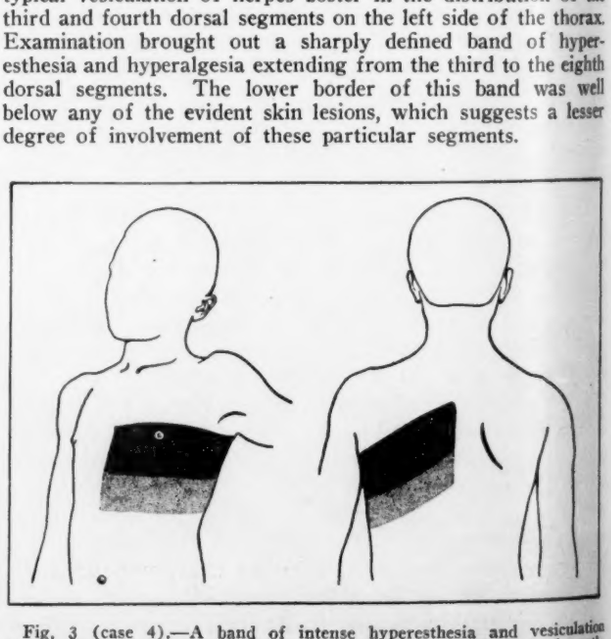

Fig. 3 (case 4).—A band of intense hyperesthesia and vesiculation (shown in black) with a nonvesicular area of hyperesthesia beneath, April 9, 1935. Six weeks later, May 23, the band of hyperesthesia was reduced to the limits of the area in black, showing a probable relation between severe ganglionic involvement and vesiculation.

Six weeks later, May 23, the hyperesthesia was less marked and the band was narrower, having disappeared from the segments that were less markedly involved. Two weeks later, June 6, all evidence of hyperesthesia and hyperalgesia was gone.

CASE 5.—In February 1936, shortly after an attack of sore thoat, herpes zoster developed in a boy, aged 14 years. Vesiculation was limited to the fourth and fifth dorsal segments on the left side. Hyperesthesia and hyperalgesia involved a much

wider area, the fourth to the eighth dorsal segments inclusive. After more than two months (May 4) he still has an indefinite narrow band of hyperesthesia.

CASE 6.—This girl, aged 13 years, when first seen was complaining of pain in the abdomen and groin on the left side. The segmental nature of the pain was noted, but it was not until two weeks later, when similar pain developed in the heel of the same side, that the case became of greater than ordinary

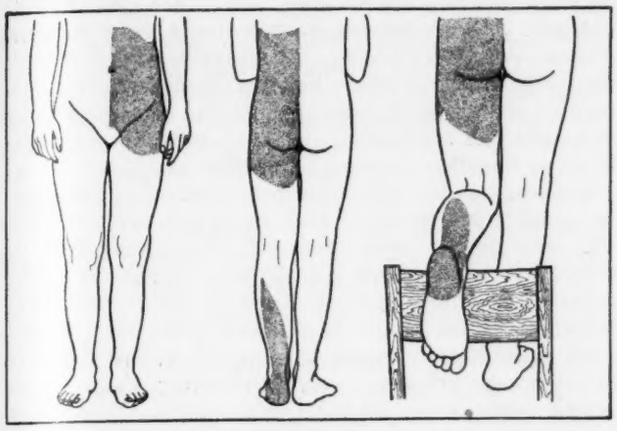

Fig. 4 (case 6).—A most unusual remote area of hyperesthesia in the exact distribution of the first sacral segment.

interest. The exact correspondence of this area of hyperesthesia to the distribution of the first sacral segment is remarkable.

CASE 7.—A boy, aged 14 years, appeared in the University Dispensary complaining of pain in the right side, which had been interpreted as due to appendicitis. Cutaneous hyperesthesia and hyperalgesia were elicited on both sides, involving the ninth to twelfth dorsal segments.

The boy received large doses of brewers' yeast by mouth (3 teaspoonfuls twice a day for three weeks of the Anheuser-Busch Company's most potent powdered yeast). Not only did the abdominal pain become worse but new pain areas developed in the shoulders and arms. The distribution was bilaterally symmetrical, affecting the ulnar and median innervation while leaving the radial free.

CASE 8.—A boy, aged 14 years, had had an appendectomy in 1933. In November 1935 he was seen with bilateral segmental pain in the distribution of the tenth, eleventh and twelfth dorsal segments. It was identified as a most exquisite hyperesthesia and hyperalgesia of the skin, which obviously cannot be explained by recourse to the viscerosensory reflex.

CASE 9.—A boy, aged 14 years, had had his appendix removed in September 1934. In February 1936 he was seen because of bilateral cutaneous hyperesthesia and hyperalgesia in the distribution of the tenth, eleventh and twelfth dorsal segments. Again it is rather obvious that the pain cannot be explained by disease in the appendix.

CASE 10.—A girl, aged 17, was seen in the University Dispensary with a complaint of intermittent pain in the right side. It had disturbed her more or less for three years. Examination revealed a typical segmental band in the distribution of the tenth, eleventh and twelfth dorsal segments—a band of hypesthesia in contrast to the usual hyperesthesia. All topical sensations were reduced in this area, although the girl complained of tingling and lancinating pains as did the other children.

EXPLANATION

The explanation of this pain syndrome must be independent of the viscerosensory reflex, since no evidence of visceral disease was established in any of the cases. It must take into account the obvious relation of the pain to infections of the upper respiratory tract as well as its segmental distribution, and it must conform to modern medical thought. Consequently, I have been led to conclude that the essential pathology of the disorder is most likely a postinfectious inflammation of the posterior spinal nerve roots and their ganglions, a radiculoganglionitis, caused by a neurotropic virus associated with the common cold.

The nature of this virus is undetermined, as to whether it may be a specific virus in its own right or identical with the virus of herpes zoster. It seems to me that the latter is quite possible as well as plausible, since the distribution and the peculiar character of the pain are so very similar in the two disorders. The fact that only two children in the entire series had typical herpetic lesions does not necessarily argue that the rest of the group were affected by a different virus. It suggests rather that vesiculation may be unusual in zoster and that subherpetic manifestations may be the rule.

Any other explanation fails of conviction. I have already remarked about the inadequacy of the theory of the viscerosensory reflex to explain the condition observed in these children. It is unlikely that allergy has any part in the disorder, as recovery has been spontaneous and permanent in most of the cases without recourse to the measures commonly employed in allergic disturbance. On the other hand, a neuritis due to vitamin deficiency may not be so easily dismissed—at least as a contributory factor—in spite of the fact that specific vitamin (B_1) therapy apparently failed to influence the course of the disease. The fact that the great majority of affected children are derived from the underprivileged group would seem to have some significance. It is quite possible that infection may be impotent in the production of this syndrome except in those children already "conditioned" through a deficiency of vitamin, even though my own studies thus far fail to provide such evidence.

REVIEW OF THE LITERATURE

In a study of the literature I have found frequent mention of manifestations commonly ascribed to visceral disease which correspond exactly to the cases I have observed. I have found also numerous references

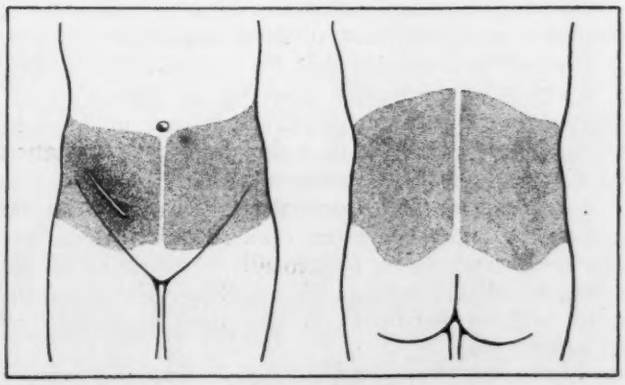

Fig. 5 (case 8).—Girdle of hyperesthesia in a patient who had had an appendectomy three years before.

to thoracic and abdominal pain different in character and origin from the syndrome under discussion.

Perhaps the earliest significant observations were those of Ross [3] (1888), who postulated a theory of referred somatic pain from an affected viscus to the appropriate spinal segment, thence by a process of diffusion to the sensory fibers of the same segment, whence the pain was referred to the skin. This concept was later elaborated by Mackenzie [1] and by Head [2]

3. Ross, James: On the Segmental Distribution of Sensory Disorders, Brain **10**: 333, 1888.

into the theory of the viscerosensory reflex, which has dominated all medical teaching since that time.

Sherren,[4] Cope[5] and more recently Livingston,[6] noting exactly the same segmental hyperesthesia and hyperalgesia that I have encountered, have cited clinical cases tending to prove the application of the viscerosensory reflex in this type of pain. Sherren noted the association in forty of 124 cases of appendicitis (26.6 per cent) and Cope in 110 of 185 cases (59 per cent). They both noted that it commonly was absent in cases of gangrenous and ruptured appendixes and in the peritonitis that followed.

Robinson,[7] on the other hand, another of the early observers, concluded that the "finding of cutaneous hyperalgesia is of slight value in appendicitis" and pointed out that this finding "persists long after other evidences have disappeared."

Livingston (1932) has noted cutaneous hyperesthesia and hyperalgesia in 86 per cent of 400 patients operated on consecutively for appendicitis. He emphasizes particularly a maximal intensity of such pain within the limits of a triangle, which he calls Sherren's triangle. He attaches such importance to this particular finding that he calls it the most pathognomonic sign in acute appendicitis. While he noted the same type of pain covering other and distinctly larger areas than this triangle, he apparently did not attach any significance to the wider distribution. Curiously, he too noted that in the presence of gangrenous and ruptured appendixes the skin signs were singularly absent.

He did make observations, however, in a patient with an appendicostomy which would seem to support the validity of the viscerosensory reflex in certain of these cases. He also quotes Campbell, who has noticed skin hyperesthesia along the inner aspect of the upper part of the thigh following ureteral manipulation in the course of cystoscopy.

These observations, of course, make it difficult to discard entirely the theory of the viscerosensory reflex. I am really not interested in doing so but rather in emphasizing another mechanism which, I believe, is operative in a great many of these cases.

Morley[8] is convinced that the viscerosensory reflex is a doubtful mechanism and that cutaneous hyperesthesia is of little diagnostic importance in appendicitis. He believes that it is derived from stimulation of a sensitive parietal peritoneum.

Boland[9] doubts the essential relation of skin hyperesthesia to appendicitis but does remark that he has observed herpes zoster occasionally in patients who had symptoms simulating appendicitis. Comroe[10] also mentions, without discussion, herpes zoster as a cause of abdominal pain.

Carnett,[11] of all clinical observers in this country, has approached most nearly my interpretation of this type of pain. However, he does not in any way relate it to acute respiratory infections or to a virus etiology. He does not specifically implicate the ganglions but does discuss posterior root pains originating in certain lesions of the spinal cord or vertebrae, such as Pott's disease, carcinoma with metastases and fracture or subluxation of the spine. He also called attention to pressure on the posterior nerve roots from postural trauma. He has endeavored especially to differentiate this type of pain, which he calls "parietal," from the pain of acute and chronic appendicitis, and in so doing questions the application of the viscerosensory reflex in most instances of skin hyperesthesia.

Russetzki[12] in 1934 described a group of 100 cases in which the symptoms and signs are approximately the same that I have observed. He noted that the symptoms of segmental pain appeared generally within a period of from five to ten days after the onset of an infection of the upper respiratory tract, that it ordinarily lasted from twenty to thirty days, that the characteristic disturbances were lancinating pains in the sensory distribution of the spinal segments, paroxysms of coughing and sneezing, difficulty in moving the affected parts, pain on percussion over the corresponding vertebral areas, and a slight increase in the cell count and globulin of the spinal fluid. In his series the pain was localized in the dorsal segments in 60 per cent of the cases, in the cervical segments in 24 per cent of the series and in the lumbar segments in 16 per cent. In 85 per cent of all his cases the involvement was unilateral, in the remaining 15 per cent bilateral. These observations all are reasonably in keeping with those in my own series. His explanation, as well, is essentially the same as the one I had arrived at independently, namely, that segmental pain, associated with hyperesthesia and hyperalgesia of the skin, is due to the action of a neurotropic virus following grippal and influenzal infection.

Additional references to the literature seem unnecessary, since much of it applies only indirectly to this study. However, I should like to mention mesenteric and retroperitoneal lymphadenitis, the "Brennemann syndrome,"[13] because it brings out the relation between infections of the upper respiratory tract and abdominal pain of another sort. Likewise the studies of Evans[14] and the more recent observations of Freedman[15] have shown that there is a definite relation between infections of the upper respiratory tract and the incidence of acute appendicitis.

COMMENT

It is evident, then, that several symptom complexes may arise in connection with acute infections of the upper respiratory tract and must be considered individually in the differential diagnosis of pain. Yet it is not too much to believe that they may occasionally occur together. Thus the apparent connection between appendicitis and skin hyperesthesia in many instances and the total lack of it in many others may be explained most readily by assuming that they have only an inci-

4. Sherren, James: On the Occurrence and Significance of Cutaneous Hyperalgesia in Appendicitis, Lancet **2**: 816-821, 1903.

5. Cope, Zachary: Some Neglected Aids in the Diagnosis of Acute Abdominal Conditions, Clin. J. **63**: 483-488 (Dec.) 1934.

6. Livingston, E. M.: The Skin Signs or Viscerosensory Phenomena in Acute Appendicitis, Arch. Surg. **1**: 83-95 (July) 1923; Further Studies of Viscerosensory Phenomena; Acute Cholelithiasis; Acute Nephrolithiasis, J. A. M. A. **82**: 1495-1498 (May 10) 1924; The Skin Triangle of Appendicitis: Its Significance and Diagnostic Value as Observed in 400 Cases of Acute Appendicitis, Arch. Surg. **13**: 630-643 (Nov.) 1926; A Clinical Study of the Abdominal Cavity and Peritoneum, New York, Paul B. Hoeber, 1932.

7. Robinson, Henry: The Clinical Bearing of Cutaneous Tenderness in Various Acute Abdominal Disorders, Especially Appendicitis, Quart. J. Med. **1**: 387-416, 1908.

8. Morley, John: Abdominal Pain, New York, William Wood & Co., 1931.

9. Boland, F. K.: Interpretation of Abdominal Pain, South. M. J. **28**: 133-137 (Feb.) 1935.

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11. Carnett, J. B.: Pain and Tenderness of the Abdominal Wall, J. A. M. A. **102**: 345-348 (Feb. 3) 1934.

12. Russetzki, J.: Les polyradiculites post-grippales, Ann. de méd. **36**: 142-146 (July) 1934.

13. Brennemann, Joseph: Abdominal Pain of Throat Infections in Children and Appendicitis, J. A. M. A. **89**: 2183-2186 (Dec. 24) 1927.

14. Evans, J. S.: Epidemiology of Acute Appendicitis in Relation to Acute Nasal and Tonsillar Infections, Wisconsin M. J. **17**: 91 (Aug.) 1918.

15. Freedman, H. J.: Forty-Two Cases of Appendicitis in Children Occurring During an Epidemic of Upper Respiratory Tract Infection, Arch. Pediat. **46**: 604-616 (Oct.) 1929.

dental relation to each other—in other words, no relation at all except that they happen to occur simultaneously in the same patient.

If, then, cutaneous hyperesthesia is divorced from appendicitis and other visceral disease, as the evidence from this study indicates must be done, it must be concluded that the viscerosensory reflex does not explain this type of pain. On the other hand, the explanation I have proposed seems to apply to all the cases in the series, including those in which segmental hyperesthesia appeared following appendectomy.

The site affected by the attacking virus has not been definitely established. There have been no biopsy or postmortem studies or other localizing evidence. Russetzki [12] apparently looks on the disorder as a primary radiculitis, a variation of the radicular syndrome first described by Dejerine [16] and his pupils and reviewed by Mayer [17] in this country, whereas I am disposed to look on it as a primary ganglionitis with secondary radicular involvement; i. e., as a form of herpes zoster.

I feel justified in this conclusion because of the striking resemblance of this disorder to herpes zoster. It explains every feature of the pain, its peculiar character as well as its segmental distribution. The fact that vesiculation occurred only twice in the series would seem to indicate a basic difference between this disorder and herpes zoster. Yet it has occurred to me that we may be dealing with a mild or subherpetic form of zoster, which seems a simpler explanation than to assume that a totally different virus does essentially the same thing as the zoster virus.

In its thoracic and upper abdominal distribution it is likely that most observers who are not too completely persuaded by the viscerosensory reflex will recognize in this syndrome the well known intercostal neuralgia. This is probably a sufficiently accurate designation so far as it applies, but it is really only a part of the whole. Other localized neuralgias are frequently encountered. It would seem advisable to include all forms under one general head, especially those forms having a common origin. Russetzki has called the syndrome "post-grippal polyradiculitis." I think his terminology minimizes the probable involvement of the posterior root ganglions. I should suggest, therefore, the term "radiculoganglionitis" as being both more nearly accurate and more descriptive of the true disease state. If it is desired to use a simpler clinical term I should suggest that "segmental neuralgia" seems more nearly to fulfil all the requirements than any other.

SUMMARY

1. I have seen more than 250 cases of segmental pain in children during the last five years. This pain was, with rare exceptions, manifest in the form of cutaneous hyperesthesia and hyperalgesia.

2. It was characteristically associated with or preceded by some form of infection of the upper respiratory tract.

3. The symptoms were relieved by counterirritants and the common analgesic drugs.

4. The duration of the pain was variable and unpredictable but the disorder has seemed to be self limited, with an apparent tendency to confer immunity.

5. The evidence indicates that the syndrome is not related in any way to visceral disease and that the viscerosensory reflex is not a satisfactory explanation of the manifestations.

6. It is suggested that the disorder may be caused by a neurotropic virus with a special predilection for the posterior roots of the spinal nerves and their ganglions. The additional suggestion is offered that the disorder may well be a subherpetic form of herpes zoster.

7. The designation radiculoganglionitis is proposed for the syndrome, along with the simpler clinical term segmental neuralgia.

10515 Carnegie Avenue.

16. Dejerine, J.: Séméiologie des affections du système nerveux, Paris, **1**: 257, 1914.
17. Mayer, E. E.: Radiculitis: Its Diagnosis and Interpretation, J. A. M. A. **71**: 353-358 (Aug. 3) 1918.

ABSTRACT OF DISCUSSION

DR. JOHN A. TOOMEY, Lakewood, Ohio: Dr. Davis has focused attention on a condition which many pediatricians may have seen often and not recognized. It is my very good fortune to have examined several of his cases, and I can subscribe to the facts described by him in these instances. He speaks truly when he states that this syndrome is common. To my knowledge, his series is the largest on record. I agree that the condition is probably postinfectious in origin, sometimes following so-called influenza. Whether the causative factor is a virus entity is not known, but Dr. Davis's suggestion along that line is interesting. It may be the same as the herpes zoster virus, or it might be similar to or identical with that virus first isolated from a common cold and described by Dochez and his associates. It certainly must be neurotropic in nature. I do not think that the term "radiculoganglionitis" is complete. It should be "neuroradiculoganglionitis," but the term proposed by Davis, "segmental neuralgia," is comprehensive. I do not find myself completely in accord wit hthe author with regard to the viscerosensory reflex response. It may be, however, that Dr. Davis did not intend to include the mechanism of production in his presentation. It is true, as he states, that a disease starting in the nerve roots and ganglions would give peripheral symptoms similar to a disease that started in the viscera and would give visceral stimulation with a referred viscerosensory response. Visceral disease is ruled out because no pathologic changes are visible. The absence of recognizable pathologic changes is granted, but, on the other hand, absorption of toxins may occur anywhere along the gastro-intestinal tract without leaving visible traces of its presence. Such neurotropic toxins would be thus taken up and carried from the gastro-intestinal tract directly to the somatic nerves. It is my belief that such is the mechanism that produces the subjective and objective symptoms, not only in typhoid but in poliomyelitis and influenza as well, and perhaps even in Dr. Davis's segmental neuralgia. Were this so, one could see how the viscerosensory reflexes might be disturbed by such conditions and yet not give rise to noticeable pathologic evidence. Dr. Davis has collected a vast amount of clinical information that is extremely practicable from the standpoint of differential diagnosis and he deserves our thanks for this careful compilation.

DR. HUGH L. DWYER, Kansas City, Mo.: I am sure that all of us have seen just such cases as Dr. Davis has described this afternoon. Not infrequently, one sees in the outpatient departments children who complain of pain in the side of the chest, or in the abdomen, which has been relieved by the local application of heat, by counterirritation or by sedatives. Careful examination of these children may show none of the physical signs of disease in the abdomen or in the chest. The examiner usually suspects that more definite signs will appear in a day or two, but the symptoms disappear without the development of pleurisy, pneumonia, appendicitis or other visceral involvement. With such an experience, I have often thought that the child had magnified his symptoms or, because he had been to the outpatient department many times before, that he liked to visit the clinic. Nevertheless, the sharp, lancinating pains that were present in some cases must have resulted from definite tissue changes. The fact that these symptoms are associated with cutaneous hyperesthesia and hyperalgesia, and that the borders of the involved area can be rather sharply defined by stroking or pinching the skin, suggests involvement of the spinal segments. Dr. Davis's observation of the frequency of this

condition following closely on mild infections of the upper respiratory tract suggests a relationship. It is logical to assume such a relationship because of the similarity of segmental neuralgia to herpes zoster, which presumably is a virus disease, and because Dochez and others have offered evidence that the common cold is due to a filtrable virus. It would seem that if physicians would adopt such means as stroking or pinching the skin in the region of the sharp, sticking pains in those children in whom there are no definite signs of visceral disease, and especially in the absence of fever and toxemia, an explanation would be found for those cases in which one waits for visceral disease that never appears.

DR. JOHN HART DAVIS, Cleveland: Dr. Toomey thinks I have disposed of the viscerosensory reflex somewhat too rapidly. I am sure he does not hold with those who think this type of pain originates in the appendix, but he has suggested that the viscerosensory reflex may operate after all through the gastrointestinal tract. I am not sure that he refers to a true reflex, an impulse transmitted along the reflex path, so much as he refers to a possible absorption of virus from the tract extending along the gray rami communicantes to the ganglions and the posterior roots. I am pleased with the suggestion, because it offers a pathway for virus spread that I had overlooked; but, after all, it is not reflex. I find the probable pathway of the virus less of a worry than suitable proof of its actual existence. I have not seen the virus. No one has ever seen a virus. It may be we are dealing with a soluble toxin instead but something at least that seems to activate the posterior root ganglions in a specific pain reaction. My chief interest with respect to this presentation is that it may enable other practitioners of medicine to differentiate more readily than hitherto between real visceral disease and harmless conditions that simulate visceral disease.

CLINICAL EXPERIENCE WITH AN IMPROVED CRYSTALLINE INSULIN

SAMUEL S. ALTSHULER, M.D.
AND
RUDOLPH LEISER, M.D.
ELOISE, MICH.

Efforts have been made during the past few years to develop an insulin that might in a measure approximate the continuous even internal secretion of the pancreas. Recently Hagedorn[1] has introduced insulin protaminate and Root and his associates[2] as well as Sprague and his associates[3] have described clinical experiences with this product. Earlier investigators[4] have attempted to devise methods to obtain a prolonged or sustained effect from insulin.

Because of the rapid action of the insulin in common use, it has been necessary to administer the amount required in two, three or even four doses daily. Especially in severe cases of diabetes has it been difficult to control the blood sugar level between the extremes of hyperglycemia and hypoglycemia. At best, the life of the diabetic patient who needs insulin is an abnormal one and any improvement that would decrease the number of daily injections, the total number of units required or the entire complexity of insulin therapy would be of inestimable benefit to the patient.

From the William J. Seymour Hospital.

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2. Root, H. F.; White, Priscilla; Marble, Alexander, and Stotz, E. H.: Clinical Experience with Protamine Insulinate, J. A. M. A. **106**: 180 (Jan. 18) 1936.
3. Sprague, R. G.; Blum, B. B.; Osterberg, A. E.; Kepler, E. J., and Wilder, R. M.: Clinical Observations with Insulin Protamine Compound, J. A. M. A. **106**: 1701 (May 16) 1936.
4. Leyton, O. F.: The Administration of Insulin in Suspension, Lancet **1**: 756 (April 13) 1929.

This paper deals with a clinical investigation of an improved crystalline insulin that was developed by Dr. Melville Sahyun of Detroit. Although in the course of preparation this insulin is in a crystalline form, for clinical use it is dissolved in various concentrations and assayed in the usual manner. The technic of administration is the same as that used for standard commercial insulin. For purposes of brevity, throughout this paper the standard commercial insulin will be referred to as "old insulin" and the improved crystalline insulin as "crystalline insulin."

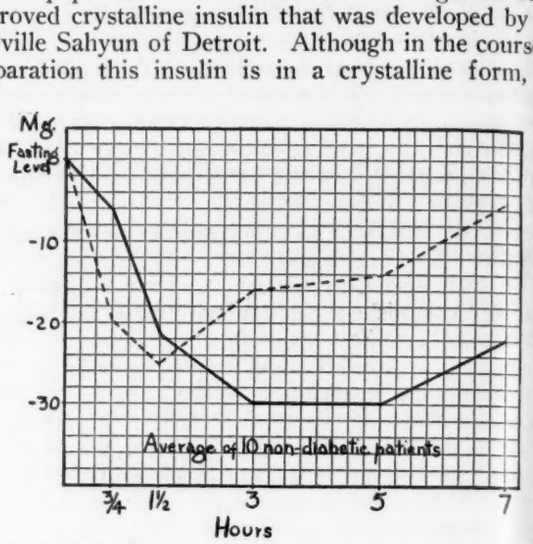

Chart 1.—Effect on blood sugar of old insulin and crystalline insulin (10 units): average of ten nondiabetic patients. Broken line, old insulin; solid line, crystalline insulin.

STUDIES OF NONDIABETIC PATIENTS

The comparative action of old insulin and of crystalline insulin on ten nondiabetic patients was first investigated.

After an overnight fast, blood sugar determinations were made, after which 10 units of old insulin was administered to each patient. Samples for blood sugar determination were withdrawn at intervals of three-quarters, one and one-half, three, five and seven hours. No food was taken during the test period. Twenty-four hours later the same procedure was repeated on the same group with an identical amount of crystalline insulin. The curves of the averages of these nondiabetic patients are shown in chart 1, from which it may be seen that the crystalline insulin lowers the blood sugar more gradually and maintains the low level for a longer period, and that at the end of seven hours the blood sugar is still far below the fasting level.

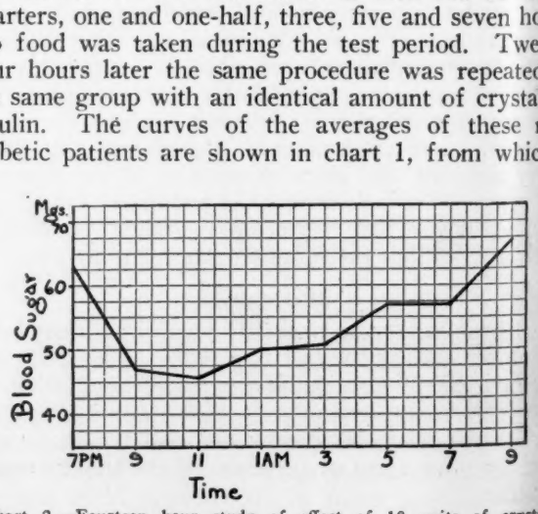

Chart 2.—Fourteen hour study of effect of 10 units of crystalline insulin on blood sugar of a nondiabetic patient.

DURATION OF ACTION

The observation that seven hours after the administration of crystalline insulin the blood sugar still had

not returned to the fasting level led to an investigation of the duration of the effect of this insulin. Consequently, three hours after the evening meal, 10 units of crystalline insulin was given to each of two nondiabetic patients. Blood sugar determinations were made immediately before the administration of the insulin and every two hours thereafter for fourteen hours. No food was taken during the period. The results of this experiment are shown in charts 2 and 3.

In one case (chart 2) the blood sugar returned to the starting level in thirteen hours; the curve of the other patient (chart 3) shows that the starting level had not been regained at the end of fourteen hours.

STUDIES OF DIABETIC PATIENTS

Crystalline insulin has been used in the treatment of twenty-nine diabetic patients whose ages range from 17 to 86 years. These patients have been in the hospital receiving accurately weighed diets for periods varying from two months to five years. All the patients are indigents who have no homes and are kept in the metabolic wards, where they are available for observation over long periods of time.

Comparative studies of old insulin and crystalline insulin have been made in twenty cases. The most equitable comparisons are those made in the cases of

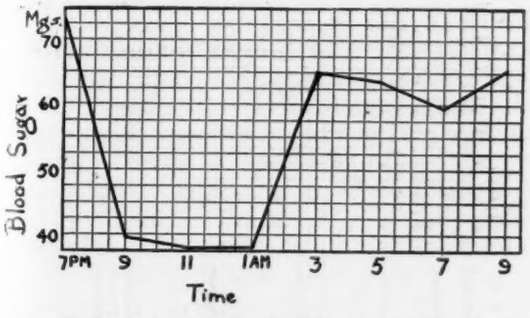

Chart 3.—Fourteen hour study of effect of 10 units of crystalline insulin on blood sugar of a nondiabetic patient.

patients with severe diabetes, who are more likely to be sensitive to slight changes in insulin dosage or times of administration.

For this study, the minimum maintenance dose of old insulin required to control the patient was compared with the minimum maintenance dose of crystalline insulin. The criteria of diabetic control were blood sugars between 70 and 180 mg. Below 70 mg. was considered the level of insulin reaction, and above 180 the level of glycosuria.

Six blood samples (capillary) were taken during twenty-four hours, at 5 a. m., 10 a. m., 3 p. m., 7 p. m., 12 midnight and 5 a. m. Determinations were made by Folin's [5] method. There were approximately 2,700 blood sugar determinations. Daily qualitative urinary examinations were made by Benedict's method on twenty-four hour specimens.

The diets were kept constant throughout this investigation. Both high and low carbohydrate diets were in use. The carbohydrate content ranged in various cases from 100 to 200 Gm., protein from 60 to 70 Gm., and fat from 80 to 150 Gm. Because of the routine of the institution, breakfast was given at 6 a. m., lunch at 10:30 a. m. and supper at 3:30 p. m. The three meals were equal in available dextrose content.

5. Folin, Otto: Micro Method for the Determination of Blood Sugar, New England J. Med. **206**: 727 (April 7) 1932.

To allow the patient to become stabilized on certain doses before blood sugar studies were made, changes in insulin dosage were not effected oftener than from five to seven days.

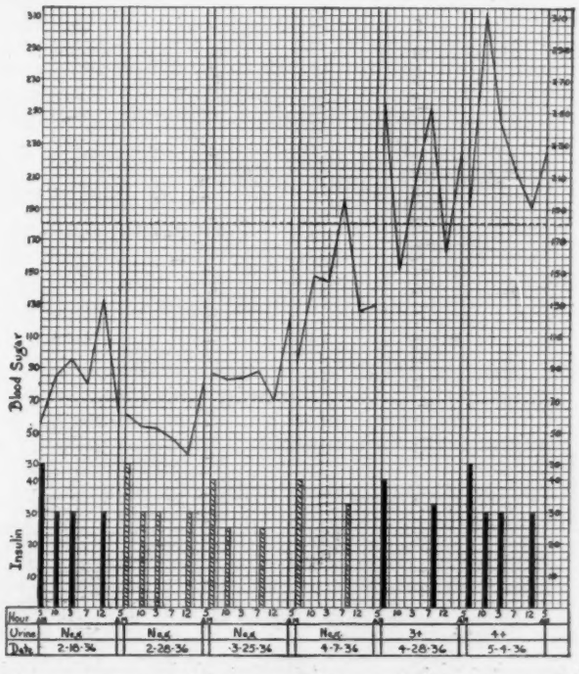

Chart 4.—Dosage of insulin and blood sugar level in case 1. Diet: carbohydrate, 100 Gm.; protein, 70 Gm.; fat, 100 Gm. In the charts old insulin is represented by solid columns and crystalline insulin by shaded columns.

Five cases selected from among our patients with more severe diabetes:

CASE 1 (chart 4).—A girl, aged 17, known to have had diabetes since 1924, was admitted to the hospital in diabetic coma June 7, 1934. She had a juvenile type of diabetes and

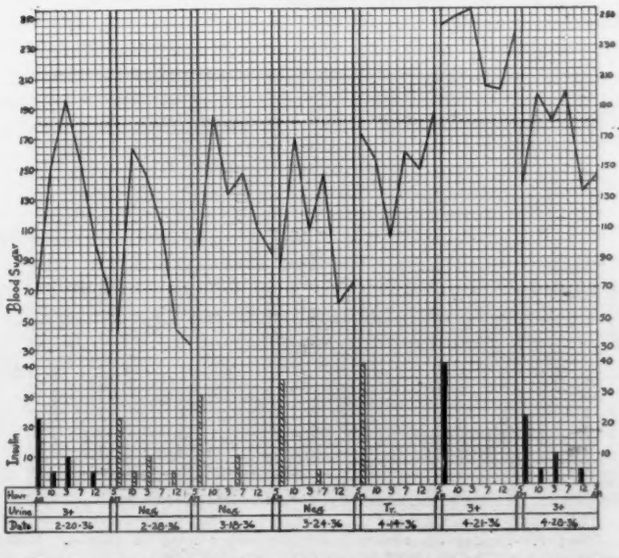

Chart 5.—Dosage of insulin and blood sugar level in case 2. Diet: carbohydrate, 170 Gm.; protein, 70 Gm.; fat, 80 Gm.

had always been difficult to control. When this investigation was started on February 18, her minimum maintenance amount of insulin was 135 units divided into four doses daily. She was given crystalline insulin on February 19 and the dosage and times of administration were adjusted until the minimum maintenance dose was reached on April 7, when she received 70 units of crystalline insulin in two doses. As a control study, for two

weeks she was put on 70 units of old insulin, given in two doses daily, with a resultant glycosuria and hyperglycemia. A further control period of one week on the original 135 units in four doses still showed glycosuria and hyperglycemia.

CASE 2 (chart 5).—A man, aged 59, known to have had diabetes since 1926, was admitted to the hospital in September 1932. This patient was also difficult to control because of fluctuations between insulin reaction and hyperglycemia. At

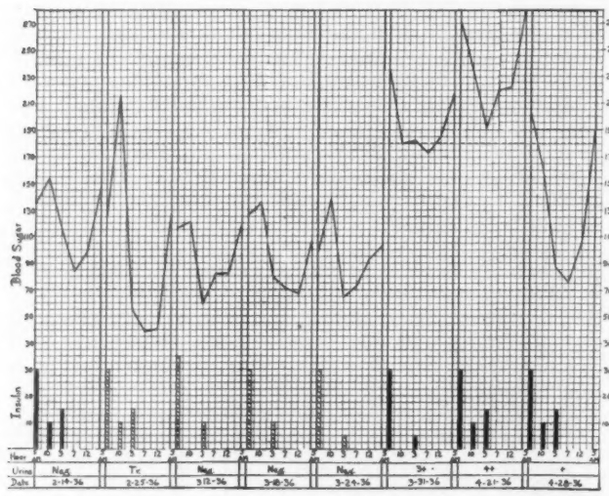

Chart 6.—Dosage of insulin and blood sugar in case 3. Diet: carbohydrate, 170 Gm.; protein, 70 Gm.; fat, 70 Gm.

the beginning of the study, February 20, his minimum maintenance dose was 42 units divided into four doses daily. He received crystalline insulin on February 21 and the dosage was gradually adjusted until April 14, when his minimum maintenance dose of 40 units of crystalline insulin given in one dose was reached. A control period of one week followed, when the patient was given 40 units of old insulin in one dose, on which he developed glycosuria and hyperglycemia. During a further control period of one week, the original dosage of 42 units in four doses daily failed to free him from the glycosuria and hyperglycemia.

CASE 3 (chart 6).—A man, aged 61, known to have had diabetes since 1921, was admitted to the hospital in July 1932.

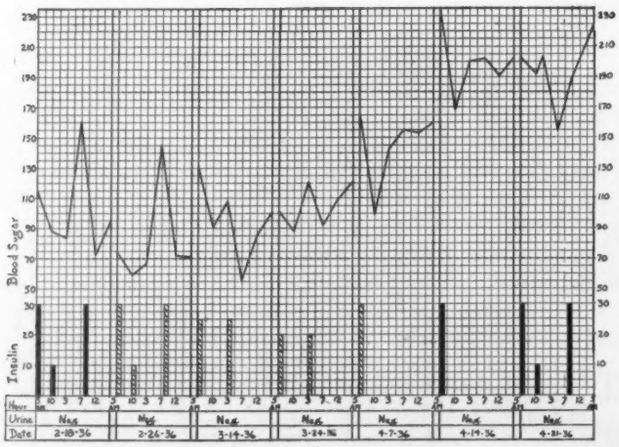

Chart 7.—Dosage of insulin and blood sugar level in case 4. Diet: carbohydrate, 100 Gm.; protein, 60 Gm.; fat, 150 Gm.

When the study was begun, February 14, he was receiving 55 units of insulin in three doses daily. February 15 he was put on crystalline insulin and the dosage was gradually adjusted until March 24, when he was being given 35 units in two doses daily. A week's control period with 35 units of old insulin in two doses daily showed a glycosuria and hyperglycemia. A second control week on the original 55 units in three doses daily did not abate this condition. However, after two consecutive weeks on the original dosage the glycosuria began to disappear and the blood sugar approached the normal level.

CASE 4 (chart 7).—A woman, aged 50, known to have had diabetes since 1934, was admitted to the hospital in March 1935. At the beginning of this investigation, February 18, she was receiving 70 units of insulin in three doses daily. She was placed on crystalline insulin February 19 and the dosage was adjusted until on April 7 she was able to get along on 30 units of crystalline insulin in one dose. During a control period of one week the patient was given 30 units of old insulin in one dose daily, on which she developed glycosuria and hyperglycemia, which a further control week on the original 70 units in three doses daily did not abate.

CASE 5 (chart 8).—A woman, aged 65, known to have had diabetes since 1932, was admitted to the hospital in July 1934. February 10 she was receiving 20 units of old insulin in two doses daily. The patient was placed on crystalline insulin on February 11 and the dosage gradually adjusted until April 7, when she received 10 units in one dose. During a control week on 10 units of old insulin in one dose she developed a marked hyperglycemia. Another control week on 20 units of regular insulin in two doses daily did not appreciably improve her condition.

COMMENT

Comparative studies show that crystalline insulin controls the diabetes with fewer units of insulin given

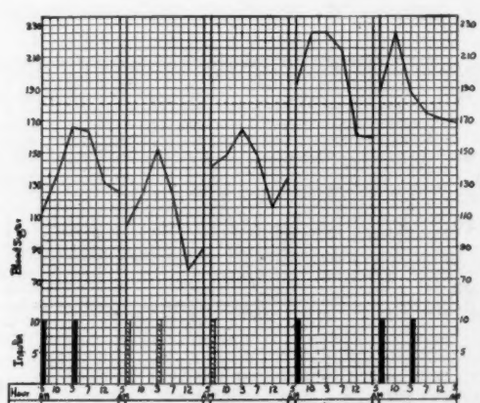

Chart 8.—Dosage of insulin and blood sugar level in case 5. Diet: carbohydrate, 100 Gm.; protein, 60 Gm.; fat, 150 Gm.

in fewer doses. The first control periods, in which comparison is made between the minimum maintenance dose of crystalline insulin and an equal amount of old insulin, indicate that the same effect cannot be accomplished with the use of the latter.

The second control periods, in which the patient was returned to the original dosage of old insulin, did not bring about control of the diabetes as these dosages had at the start of this investigation, because they were minimum maintenance doses and not sufficient to lower the blood sugar within normal levels.

In this entire group of diabetic patients to whom crystalline insulin was given, no untoward effects either local or general were observed. It was found to be satisfactory in controlling the glycosuria in diabetic patients with such infections as abscesses of the neck, gangrene of the feet and infections of the upper respiratory tract. It was efficacious in the treatment of diabetic patients with mild acidosis.

CONCLUSIONS

1. Crystalline insulin has a slower action than old insulin and therefore produces a more gradual and more prolonged effect on the blood sugar.

2. The duration of action on nondiabetic patients is approximately thirteen to fourteen hours.

3. In the treatment of diabetes mellitus, blood sugar levels are better controlled with fewer doses or with fewer total units. In many cases both the number of injections and the amount of insulin is less when crystalline insulin is used.

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PRIMARY TULAREMIC ULCERS IN PHARYNX

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Tularemia is a disease arousing increasing comment. In Virginia alone 105 cases were reported to the state board of health in 1932. Ophthalmologic literature frequently records the oculoglandular form of tularemia. My object in this paper is to review briefly the disease and to report a case in which the primary lesion was located in the pharynx. This case, of especial interest to the otolaryngologist, presents a primary site of infection in a region heretofore unreported in the literature.

Historically, tularemia is the first disease to be worked out entirely by American investigators, and it stands as a monument to the scientists of the United States Public Health Service. In 1911-1912 McCoy and Chapin [1] first discovered and cultivated Bacterium tularense in ground squirrels of Tulare County, Calif. Wherry and Lamb [2] first isolated the organism from a human being (conjunctiva) in 1914. They found the organisms in infected rabbits in their locality and warned of the danger of transmission of the infection from rabbits to man.[3] Francis [4] in 1919 recognized "deer-fly fever" of Utah to be caused by B. tularense and named the new disease tularemia. Francis further contributed largely to the knowledge of the symptoms, pathology, bacteriology, transmission and diagnosis of the disease.

Tularemia is primarily a fatal disease of rodents, chiefly rabbits, and is secondarily transmitted to man from rodents by the bite of an infected tick and other blood sucking insects, by contamination of the hands with infected material, or by the ingestion of improperly cooked infected meat.

Clinically, of the four main types of tularemia—ulceroglandular, oculoglandular, glandular, and typhoidal—I am dealing here with a form of ulceroglandular tularemia. The ulcers are chronic indurations resembling the primary lesion of syphilis, appearing after an incubation period of from one to nine days, and accompanied by chills, high fever, sweating, headache and prostration. The regional adenopathy, often quite large and frequently suppurative, may appear before the primary lesion is apparent. Pulmonary manifestations [5] consisting of pulmonic consolidation, bronchitis or pleural effusion may follow the initial symptoms. A moderate leukocytosis with a distinct shift of the Schilling count to the left is found.

A diagnosis is ordinarily confirmed by a positive agglutination reaction of the serum against Bacterium tularense. This reaction becomes positive generally in the second or third week and persists indefinitely. Cross agglutinations with the organisms for undulant fever occur in about 20 per cent of cases and at times lead to confusion. Recently Lee Foshay [6] has reported satisfactory diagnostic results with an intradermal injection of a suspension of Bacterium tularense. This test is said to have the advantage over the agglutination test of becoming positive much earlier in the disease.

General symptomatic treatment is usually instituted, with incision of the lymph node when necessary. The Camps [7] have reported two cases in which intravenous mercurochrome proved to be of marked benefit. Intravenous neoarsphenamine [8] and roentgen therapy to the primary lesion [9] have been recommended. Foshay [10] has urged the administration of his special antitularemia serum. He reports excellent results following this form of therapy: the febrile period is shortened, the symptoms are ameliorated, the prolonged disability is lessened, and the glandular enlargement is decreased. The serum is especially effective when used early in the course of the disease, and an early diagnosis can be made by the use of his intradermal test.

In the current literature are reports of several cases of tularemia presenting pharyngeal lesions. Crawford [11] writes of a family that contracted tularemia from the ingestion of insufficiently cooked rabbit. In one member of the family a peritonsillar abscess and enlarged submaxillary lymph nodes developed. The patient died in the fourth week of lung abscess and bronchopneumonia. His blood agglutinated B. tularense during the second week in a dilution of 1:80 and during the third week in a dilution of 1:1,280.

Freese, Lake and Francis [12] report three fatal cases of tularemia in which conjunctivitis occurred. The surviving patient had a swollen left eye, marked enlargement of the lymph nodes of the left superior cervical region and a slightly reddened throat. Swabs taken from the nose and throat were used to inoculate culture mediums and guinea-pigs. The guinea-pigs died and showed typical postmortem changes of tularemia in the spleen and liver. The patient's blood serum agglutinated B. tularense in a dilution of 1:1,280. A purulent dacryocystitis developed. Four members of the family remained well. They showed that insufficiently cooked infected meat can cause fatal lesions in experimental animals when injected subcutaneously.

Francis [13] has also seen a case of tularemia with the primary site of infection at a pimple in the nose, which the patient had scratched while dressing a rabbit.

REPORT OF CASE

A white woman, aged 32, married, admitted to the University of Virginia Hospital, July 18, 1934, complained of an extremely sore throat of twelve days' duration. The onset of illness had

From the Department of Otolaryngology and Ophthalmology, University of Virginia Hospital.
Read before Virginia Society of Otolaryngology and Ophthalmology at Fredericksburg, Va., May 3, 1935.

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2. Wherry, W. B., and Lamb, B. H.: J. Infect. Dis. **15**: 331-340, 1914.
3. Wherry, W. B., and Lamb, B. H.: Discovery of Bacterium Tularense in Wild Rabbits and the Danger of Its Transfer to Man, J. A. M. A. **63**: 2041 (Dec. 5) 1914.
4. Francis, Edward: Pub. Health Rep. **34**: 2061-2062 (Sept. 12) 1919.
5. Blackford, S. D.: Ann. Int. Med. **5**: 1421 (May) 1932.
6. Foshay, Lee: Tularemia, J. Infect. Dis. **51**: 286-291 (Sept.-Oct.) 1932; An Antiserum for the Treatment of Tularemia, J. A. M. A. **101**: 1447-1449 (Nov. 4) 1933.
7. Camp, Jim, and Camp, J. H.: Southwestern Med. **16**: 294 (July) 1932.
8. Fischer, W. S.: J. Indiana M. A. **26**: 273 (June) 1922.
9. Baer, H. L.: Roentgen Treatment of the Primary Lesion of Tularemia, Arch. Dermat. & Syph. **28**: 557-559 (Oct.) 1933.
10. Foshay, Lee: Am. J. M. Sc. **187**: 235 (Feb.) 1930.
11. Crawford, Monroe: Tularemia from the Ingestion of Insufficiently Cooked Rabbit, J. A. M. A. **99**: 1497 (Oct. 29) 1932.
12. Freese, H. L.; Lake, G. C., and Francis, Edward: Pub. Health Rep. **41**: 369-372 (Feb. 26) 1926.
13. Personal communication to the author.

been sudden, commencing with chills, fever and sore throat. Her local physician was consulted and made a throat smear and blood culture, both of which were reported negative. Although a definite diagnosis could not be made, the case was treated as Vincent's angina by the administration of neoarsphenamine intravenously and locally to the throat. The temperature at onset had been 104 F. and had remained at this height until two days before admission, at which time it dropped to 102 F. The patient's condition did not improve in spite of treatment, and the excessive dysphagia made eating almost impossible. The patient lost 10 pounds (4.5 Kg.) in twelve days and felt extremely weak at the time of admission.

The positive changes on physical examination were as follows: There was a large confluent ulceration involving almost the entire right side of the posterior wall of the pharynx; many discrete shallow ulcerations measuring from 2 to 3 cm. in diameter, covered with a gray exudate, were scattered over the posterior pharyngeal wall. The cervical glands were bilaterally enlarged and tender. The temperature on admission was 102.4 F. The tonsils had been removed. The eyes, nose, sinuses and ears were normal on clinical examination. No other adenopathy was noted.

The urine was normal. The white blood count was 21,000, with a distinct shift of the Schilling count to the left. A throat culture was negative for diphtheria and showed nonhemolytic streptococci, staphylococci and Micrococcus catarrhalis. The blood culture was negative.

Antimony and potassium tartrate intravenously and a gargle of solution of hydrogen peroxide were used immediately on the basis of a preliminary diagnosis of Vincent's angina. On the second day in the hospital a 1 per cent mercurochrome spray was tried, which gave the patient remarkable immediate relief, the pharyngeal pain and dysphagia disappearing almost entirely. Because of the high fever, the atypical course for the common pharyngeal diseases and the marked cervical adenopathy, routine agglutinations for the typhoids, tularemia, typhus and undulant fever were done. The first report showed a 4 plus agglutination against Brucella abortus in dilutions of 1:320 and 2 plus in dilutions of 1:1,280. A one plus agglutination against B. tularense was found in dilutions of 1:640. Six days later, i. e., about three weeks after the onset of the illness, a 4 plus agglutination against B. tularense was found in dilutions of 1:1,280, whereas an agglutination against Brucella abortus had fallen to 3 plus in 1:20; a week later the Brucella abortus agglutination was negative. A specimen of blood was sent to the United States Public Health Service and a complete agglutination for tularemia was found in dilutions of 1:2,560 and partial agglutination in dilutions of 1:5,120. The report on the undulant fever agglutination was negative. An intradermal test with Foshay's suspension of B. tularense was negative, but this might have been occasioned by the fact that the suspension used was nearly a year old. Roentgenograms of the chest revealed a slight increase in density in both hilus zones and descending trunks on each side.

Two days after admission the patient became afebrile, and she was discharged greatly improved after eight days in the hospital. Two months after her discharge she reported by letter that she was enjoying excellent health and that the glands and sore throat had entirely disappeared. She had noticed a considerable falling out of her hair following the illness.

COMMENT

The clinical course was typical of tularemia; there was no evidence of a primary lesion on any part of the body other than the posterior wall of the pharynx and no other than cervical adenopathy was present. A positive agglutination for B. tularense was obtained in the third week of the disease in dilutions up to 1:1,280 in three separate laboratories.

On direct questioning a history was obtained of picking ticks from the ears of her pet dog and crushing them between her fingers one week before the sudden onset of sore throat and high fever. The infection was evidently carried to the mouth on fingers that had crushed infected dog ticks. Francis [13] also believes that this is the probable mode of infection. If the organisms can be carried on the fingers to infect other parts of the body, it can probably also be carried to the pharynx. The eating of improperly cooked infected food is another way in which a primary lesion may occur.

The relief of pharyngeal discomfort achieved by the 1 per cent mercurochrome spray is of interest in view of the report by the Camps on the intravenous use of mercurochrome. The result with arsphenamine could not be evaluated because of the inadequate dosage.

Whereas tularemic manifestations in the pharynx are not common either early or late in the course of the disease, the possibility of this disease should be borne in mind in districts such as Virginia, where tularemia is prevalent.

SUMMARY

In a case of tularemia with primary ulcerations in the pharynx and bilateral cervical adenopathy, the inoculation presumably occurred from crushing an infected dog tick and carrying the organisms to the mouth on the fingers.

GONOCOCCIC ENDOCARDITIS

REPORT OF A CASE WITH POSITIVE BLOOD CULTURE

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Although a number of cases of acute bacterial endocarditis caused by the gonococcus have been reported in the past few years, the proved cases are still few enough, especially in view of the prevalence of gonorrhea, to make this condition a comparative rarity and to justify the report of this case.

Hoffman and Taggart,[1] reporting a case in 1932, reviewed the literature for the past decade and could find only nineteen cases reported, of which they regarded only eight as proved. Their criteria of proof were a positive blood culture intra vitam or a postmortem culture from the heart valve. Positive smear from a heart lesion, without culture, they regard as only presumptive evidence and a positive complement fixation alone as questionable, since the genital infection alone would give this and it is therefore no proof by itself of gonococcic sepsis or endocarditis. Using less rigid standards, Eric Stone [2] in 1934, in a thorough search of the literature, found 122 cases reported with sufficient data to be critically studied. Of these only eighty-five could be regarded as proved cases in which blood or valve cultures were positive, or cultures were sterile but valve smears positive and there was a concomitant or very recent gonorrhea. In fact, acute bacterial endocarditis is itself an uncommon condition, occurring, according to White,[3] as only 1 per cent of all types of endocarditis, and he quotes Thayer's table of 199 cases, of which only 11 per cent were caused by the gonococcus.

In only thirty-four of the cases analyzed by Stone was the blood culture positive, and this is the only proof of diagnosis clinically. However, the diagnosis may

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1. Hoffman, A. M., and Taggart, F. C.: Gonococcic Endocarditis, Ann. Int. Med. 5: 397 (May) 1932.
2. Stone, Eric: Gonorrheal Endocarditis, J. Urol. 31: 869 (June) 1934.
3. White, Paul: Heart Disease, New York, Macmillan Company, p. 343.

safely be presumed when a patient presents the picture of ulcerative endocarditis and gonorrhea, even though the cultures remain sterile; for blood culture as the sole criterion of diagnosis in this condition is unreliable, owing to the difficulty of growing this fastidious organism on artificial mediums. As on culture mediums, the organism is often fragile on distant foci and is quickly displaced by secondary pyogenic invaders, so that it may not be demonstrable on smear or section of the infected valve. When an ulcerative endocarditis follows or is concomitant with a genital infection, therefore, the diagnosis of gonococcic endocarditis may justly be considered; in fact, sterile blood cultures, ruling out the usual bacteremic organisms, are almost as good evidence of the etiologic agent of the sepsis as a positive culture. In some cases, however, there may be no detectable evidence of genital infection at the time of the endocarditis, and many months may have passed since its occurrence. In such cases the absence of bacteriologic confirmation obviously precludes the possibility of diagnosis, and there are possibly a number of cases so missed.

Gonorrheal endocarditis is always secondary to infection of the genital tract, usually during or shortly after the primary infection. This is often mild; there is apparently little local tissue resistance, so that, instead of a barrier as in the usual case, there is a portal for early dissemination. In only a few of the cases analyzed by Stone could it be determined just when blood stream invasion had occurred, as shown by sudden chill, followed by hyperpyrexia and rapid development of the typhoid state. The usual onset is insidious, being masked by the appearance of some gonorrheal complication, most often polyarthritis. The frequency of association of arthritis and endocarditis forces the assumption that the polyarthritis is itself a manifestation of bacteremia (which is therefore a not infrequent occurrence) and that there is necessary only a locus minoris resistentiae, in the form of a damaged or congenitally defective endocardium, to permit the development of gonococcic endocarditis. It is only in the exceptional case of bacteremia that gonococcic endocarditis develops on a normal endocardium, as there have been reported many cases of gonococcic bacteremia with recovery that gave no previous history of a cardiac lesion and showed none after recovery.

The usual onset of septicemia is in the second or third week of genital infection, although, as previously noted, and as in the present case, it may occur at any time or even when there is no sign of local infection. As about 90 per cent emerge from cases of gonorrheal arthritis, all cases of joint involvement should be watched for this complication. The earliest signs are unduly high temperature during the course of the arthritis, persistence of high temperature while the arthritis is subsiding, or sudden hyperpyrexia with wide fluctuations, with or without chills, as articular symptoms are lessening.

The local endocardial lesions are rapidly destructive, and therefore signs of valvular damage appear early. In some cases, death may follow very soon after the development of the murmurs—within five days, in two cases reported by Peters and Horn.[4] After vegetations appear, further complications, as in any other form of acute bacterial endocarditis, may arise—embolic phenomena, pneumonia, pleurisy. Nephritis is very common. Most cases end fatally, usually within a short time, but about one third run a course of two months or more.

4. Peters, H. L., and Horn, Benjamin: Malignant Ulcerative Gonococcic Endocarditis, J. A. M. A. **102**: 1924 (June 9) 1934.

REPORT OF CASE

A man, aged 38, was admitted Nov. 6, 1935, complaining of fever and joint pains. He had been perfectly well until the onset of the present illness, which began with headache, malaise, slight chill and fever, two and one-half weeks before admission. On the fourth day, while going to the bathroom, he fainted and fell, bruising the right elbow and both knees. Shortly after this he began to have pain in both knees, and pain, redness and swelling of the right elbow. These joint symptoms subsided after a few days of baking, except for occasional recurrence of pain. He remained in bed, the temperature ranging from 101 to 104 F. One week before admission he had a severe chill and a subsequent temperature of 104, a second chill the day before admission, and another on the day he entered the hospital.

His previous history was essentially negative, except for two attacks of peritonsillar abscess and several attacks of grip. There was no knowledge of rheumatism, of any cardiac lesion or of venereal infection.

The patient was well nourished, quite pale, dyspneic, and apparently acutely ill. The pharynx was markedly injected; the tonsils were cryptic and there was no exudate. There was some submaxillary adenitis. The heart was normal in size, the sounds were of fair quality and regular, and there was a questionable impurity of the first sound at the apex. The lungs were clear; the abdomen was moderately distended but otherwise normal. The extremities showed normal articulations and arterial pulsations. The external genitalia were normal; rectal examination revealed a prostate about 50 per cent enlarged, smooth and elastic, and the right seminal vesical distended but soft and not tender.

The urine showed a faint trace of albumin; the white blood count was 22,000, with 87 per cent polymorphonuclears; the red count was 4,000,000. Hemoglobin was 76 per cent. The sedimentation rate was 73 mm. in one hour. Blood chemistry figures were normal. The Kline test was negative. Blood culture was sterile.

The patient had a chill lasting thirty minutes the next day, during which he was cyanotic and very dyspneic, the temperature going to 105, and another at 5 p. m. On the fourth night he suddenly complained of numbness and pain in the right leg. Examination showed that the right femoral artery was palpable, but from there down no pulsation was felt and the leg was cold and cyanotic. There had evidently been an embolic closure at the level of the popliteal artery.

The questionable blow at the apex was now noted to be a definite systolic murmur, transmitted upward toward the pulmonic area. The next day the leg had apparently recovered to a great extent, in that it felt warm and the pallor and cyanosis had disappeared. Palpation and oscillometery, however, showed that the artery was still occluded. The surgical consultant saw no threat of gangrene, as there was apparently sufficient collateral circulation, and advised passive vascular exercise, which was instituted.

He continued to have chills at somewhat irregular intervals, usually about forty-eight hours, a temperature of from 101 to 103, with rises as high as 108 after the chills, progressive anemia, and a leukocytosis of from 22,000 to 26,000. Red and white cells and casts began to appear in the urine, coincident with increasing albuminuria. Complement fixation tests for gonorrhea were reported positive November 16 and 27; blood cultures were sterile on several examinations. Agglutination tests for Brucella melitensis were negative, but Widal tests were reported positive in a dilution of 1:80 November 23 and December 2. In view of the fact that the patient had been inoculated against typhoid some years before and that in the presence of fever an existing low antibody titer may be increased, the test was repeated to higher dilutions and found positive 1:160.

November 26, twenty days after admission, two petechial spots with white centers were noted on the palate, and a few days later several were seen on the conjunctivae and trunk. The patient was becoming very much weaker, at times drowsy, and apathetic. December 3 a new embolic area appeared in the left

foot, with absent dorsalis pedis pulsation, and the general condition became much worse, with fatal termination December 4.

The last blood culture had been taken December 2 and four days later began to show about twenty colonies, examination of which showed gram-negative diplococci, culturally Neisseria gonorrheae.

The anatomic diagnosis at the postmortem examination was ulcerative endocarditis of the mitral valve, infarcts in the spleen and kidneys, petechial hemorrhages of the skin, acute bilateral nephritis, dilatation of the right ventricle, and passive congestion of the viscera. The essential changes in the heart were petechial hemorrhages in the pericardium; measurements of 11 cm. from apex to base, and 10 cm. at the base. The right side was normal. The left atrium contained some clots; the foramen ovale was closed; the auriculoventricular orifice was 8.5 cm. in circumference; the valves were thickened, stiff and ulcerated. Attached to the free margin of both cusps were cauliflower-like vegetations. The ventricular wall was 2 cm. thick and flabby. The aortic orifice was 6 cm. in circumference. The heart weighed 410 Gm.

Microscopic examination disclosed that the myocardial fibers were of good size; the nuclei stained well. Intermuscular connective tissue was not increased. The surface of the mitral valve was covered with fibrin and polymorphonuclear cells. The deeper layers were made up of homogeneous, pink-staining material, in which occasional spindle-shape cell nuclei were seen. There were accumulations of polymorphonuclear cells in the deeper layers. In the base of the valve and the nearby thickened endocardium there was a dense infiltration of polymorphonuclear and mononuclear cells. In a preparation stained by Gram's method, granules were seen in several of the cells of the exudate, but no definite bacteria.

The seminal vesicles contained a thick, cloudy fluid; the prostate measured 4.5 by 2.5 by 2.5 cm.; the cut surface was yellow and homogeneous; microscopic examination was negative.

COMMENT

This case presents several unusual features, which illustrate the difficulties often encountered in arriving at a diagnosis. In fact, were it not for the positive blood culture, in itself a rather rare observation, the diagnosis could not have been made, for there was no history nor anatomic evidence of gonorrhea except possibly the enlarged prostate and seminal vesicle. The positive complement fixation was contradicted by the equally positive Widal, so that the serologic reactions only confused the clinical picture, and the postmortem examination, while confirming the clinical diagnosis of ulcerative endocarditis, gave no hint of etiology.

There was no evidence of previous cardiac damage or defect, so that this is one of those exceptional cases in which gonococci, invading the blood stream, have caused inflammation of a normal endocardium.

Although the demonstration of gonococci in the valve would have been further evidence in this case, the failure to do so is explained by the fact that no active search was made for them until after the report of the last blood culture, by which time these fragile organisms could readily have been replaced by the secondary invaders found on culture—B. coli and Staphylococcus aureus.

This case also illustrates the importance of repeated blood cultures, and it is interesting that growth was finally obtained on ordinary Savita agar and bouillon, after failure with special mediums.

1623 Avenue P.

Chromophobe Adenomas.—Operations for these chromophobe adenomas are undertaken largely to preserve vision, for the expanding lesion stretches and distorts the overlying optic chiasm.—Cushing, Harvey: "Dyspituitarism": Twenty Years Later, in The Harvey Lectures, Baltimore, Williams and Wilkins Company, 1934.

Clinical Notes, Suggestions and New Instruments

AN UNUSUAL FOREIGN BODY (BONE PEG) IN THE BLADDER

OWSLEY GRANT, M.D., LOUISVILLE, KY.

A woman, aged 56, fell on the stairs and injured her left hip, Oct. 9, 1934. She had no especial medical attention until October 14, when she was admitted to the hospital. Examination showed inversion and adduction of the left thigh, with some shortening; there was no active motion of the left leg, but passive motion of the hip joint was extremely painful. X-ray examination showed an intracapsular fracture of the left femur. Two days later the left trochanter was exposed, the capsule severed, and under direct vision a beef-bone peg inserted

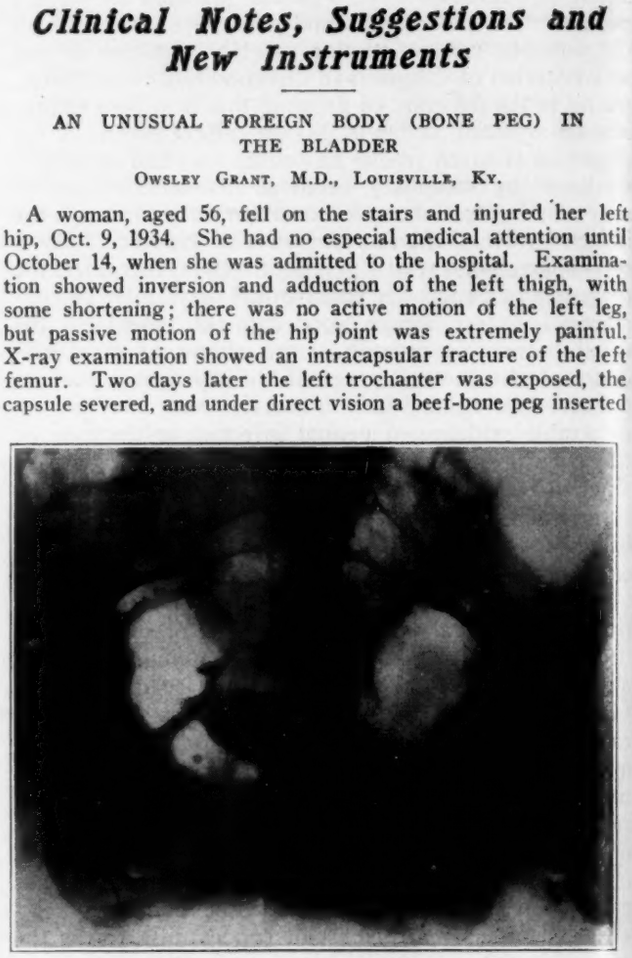


Fig. 1.—Bone peg surrounded by calcification in bladder six months after insertion in left hip.

through the trochanter and on into the head of the femur, holding the two in apposition. There was no perforation of the acetabulum.

There developed some moderate infection at the operative site. This infection was not severe and did not make itself evident until a week after the insertion of the peg. At that time an abscess about the wound was opened and pus evacuated. The patient remained in the hospital for three and one-half weeks, and the temperature still did not subside to normal. After removal to her home, the patient was under the care of

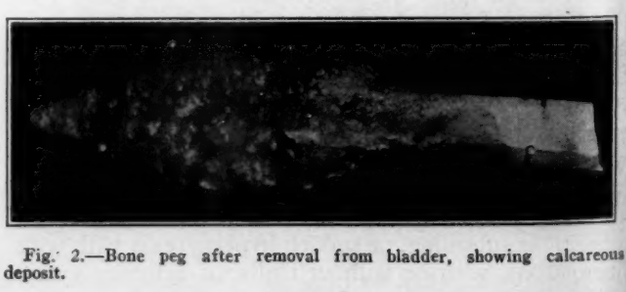


Fig. 2.—Bone peg after removal from bladder, showing calcareous deposit.

the orthopedic surgeon. Her next symptoms were a very marked gastro-intestinal irritation and distention of the colon. These were so marked at one time as to raise the question of obstruction. This persisted for several weeks but subsided gradually.

Four months after discharge from the hospital, bladder irritation began and blood and mucus appeared in the urine. Two weeks of irrigation did not improve this condition and she was referred for cystoscopy. Because the patient had had some vesical disturbance even prior to operation, and considering the character of the urine, a malignant condition was suggested. The bladder capacity was very small, 1½ ounces (45 cc.). The

inflamed walls seemed to surround a large, irregular, fungating mass lying in the center of the bladder. The nature of the surface of this mass was not specifically clear; it appeared to be calcification in some portions and in others that of neoplasm. A roentgenogram was then taken, which revealed the unusual picture seen in figure 1.

The bone peg was pictured migrating apparently on the same axis as that on which it had been inserted in the hip, and on about one-half its length there was evidence of a heavy deposit of salts. The bladder was opened suprapubically and it was found that the pointed end of the peg was just beginning to perforate the right wall of the bladder and that by manipulation the peg could be easily loosened and removed. On the left side a sinus extended from the bladder to the head of the femur, which could be readily palpated from the bladder. No endeavor was made to excise this sinus, which was simply curetted and the bladder then closed about a Pezzar catheter. The patient made an uneventful recovery and has now good use of both legs, although the left is a little shorter than the right.

One can only estimate the length of time it took the peg to travel this course. From the amount of calcareous deposit, it must have been in the bladder for some time. Since it was six months between the insertion of the peg and its removal, and about one half of that period had elapsed after insertion of the peg before any bladder symptoms manifested themselves, it would appear that it required about three months for the point of the peg to travel from the left acetabulum to the point where it penetrated the left wall of the bladder.

801 Heyburn Building.

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN

THE USE OF DRUGS IN THE TREATMENT OF ANEMIA

MAURICE B. STRAUSS, M.D.
BOSTON

This is one of a series of articles written by eminent clinicians for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

The past two decades have witnessed radical changes in the management of anemia. Previously treatment for all types of anemia consisted chiefly in general hygienic measures, fresh air, nutritious food, iron and arsenic to "stimulate" the bone marrow, and transfusion of blood when necessary. Today diagnosis of the specific type of anemia is of primary importance. It is recognized that anemia occurs either because of loss or increased destruction of blood, or because of decreased formation of blood. If anemia results either from acute loss or from increased destruction of blood, drug or diet therapy will be of no avail. Decreased formation of blood may be the result of nutritional deficiency or of other disturbances of the blood-forming organs. If it is due to the former, the administration of the substances specifically lacking will be followed by increased blood formation; if to the latter, such treatment is useless. The successful treatment of anemia, therefore, depends essentially on exact diagnosis. If there is doubt as to the nature of the anemia, the time to establish the diagnosis is before, not after, the blood picture has been obscured by indiscriminate therapy. The following tabular classification of anemias on an etiologic basis will be adhered to in the consideration of therapy:

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard), Boston City Hospital, and the Departments of Medicine and Tropical Medicine, Harvard Medical School.

CLASSIFICATION OF ANEMIAS

1. Anemia due to acute blood loss.
2. Anemias due to increased blood destruction.
   - (*a*) Extrinsic causes: chemicals; infections, as malaria, hemolytic streptococci, and so on.
   - (*b*) Intrinsic causes, as hemolytic jaundice, sicklemia and paroxysmal hemoglobinuria.
3. Anemias due to decreased blood formation from nutritional deficiency.
   - (*a*) Pernicious and related macrocytic anemias (sprue, pregnancy, pellagra, gastro-intestinal disturbance).
   - (*b*) Hypochromic anemias of all types (including that due to chronic blood loss).
   - (*c*) Anemia due to deficiency of vitamin C.
   - (*d*) Anemia due to deficiency of thyroid secretion.
4. Anemias due to decreased blood formation from disturbances of blood-forming organs.
   - (*a*) Toxic: benzene, nitrogen retention, chronic sepsis, and the like.
   - (*b*) Physical: radiation.
   - (*c*) Mechanical: metastatic carcinoma of bone marrow, Hodgkin's disease, leukemia and other conditions.
   - (*d*) Idiopathic disturbances of blood-forming organs; "aplastic," Cooley's, splenic, hepatic, congenital anemias.

ANEMIA DUE TO BLOOD LOSS

The fundamental point in the treatment of anemia of blood loss obviously lies in bringing about the cessation of bleeding, whether this is acute or chronic. In acute hemorrhage the immediate effects are due to the reduction of the blood volume rather than to anemia. The reduction in blood volume varies with the amount and rate of blood loss and, if severe, requires treatment by the prompt transfusion of blood. The immediate intravenous infusion of physiologic solution of sodium chloride or 5 per cent dextrose solution is of value until blood can be obtained for transfusion. However, in any type of chronic blood loss, and in many instances of severe acute hemorrhage, adequate therapy must, in addition, be instituted to promote the formation of new hemoglobin. If a surgical procedure of any magnitude is necessary to stop chronic blood loss, it is desirable, at least partially, to alleviate the anemia and associated deficiency state preoperatively. Measures to accomplish this will be considered under the therapy of hypochromic anemia.

ANEMIA DUE TO INCREASED BLOOD DESTRUCTION

The proper treatment of anemia due to blood destruction lies in removing, whenever possible, the cause. If due to chemicals, their ingestion or exposure to them must be stopped. If due to infections, therapy must be directed to the removal of the offending organisms. In sickle cell anemia no therapy other than supportive measures, such as transfusion, is of value. In chronic hemolytic jaundice, particularly of the hereditary type, splenectomy may be of great benefit. In other chronic hemolytic anemias, particularly if splenomegaly is present, the removal of this organ may be of value. Since there is a conservation of blood-building materials in the hemolytic anemias, little or no deficiency of such materials occurs. Therefore therapy with iron or liver preparations is not indicated, although after the cause of hemolysis has been removed the use of iron may possibly hasten the return of the blood to normal.

ANEMIAS DUE TO NUTRITIONAL DEFICIENCY

In the anemias due to nutritional deficiency, therapy properly administered has its most brilliant successes.

(*a*) *Pernicious Anemia.*—In the treatment of pernicious anemia, preparations of liver or stomach are to be employed. The available products are Extract of Liver, U. S. P. XI, Solution of Liver, U. S. P. XI, Stomach (Dried Stomach), U. S. P. XI, stomach-liver combination (Extralin, N. N. R.) and Purified Solution of Liver, U. S. P. XI. The first four are for oral administration only; the last is for parenteral use. Provided an amount of such material can be and is employed which is adequate for the individual case, it is a matter of little moment as to which preparation is used. Normal erythropoiesis is possible only when the necessary building stones supplied by such preparations are available. None of these substances have any general "stimulating" effect on the bone marrow. Before prescribing one of the preparations in any given case it is therefore of paramount importance to determine that it is the type of material needed. "Shotgun" therapy is to be deplored for a number of reasons. Most mixtures of substances fail to contain enough of any one ingredient to give maximal effects. The patient must pay not only for the material he needs but also for nonessentials. Mixed therapy may so cloud the clinical picture that accurate evaluation of subsequent therapeutic needs becomes impossible. Most patients with addisonian pernicious anemia require lifelong treatment, whereas the majority of patients with anemia due to iron deficiency, once well, will remain well unless the original cause is reestablished. Therefore, if a patient, not definitely known to have pernicious anemia, receives both liver and iron and recovers, no conclusion can be drawn as to which was the effective substance. If both should now be stopped, the patient, should he have pernicious anemia, will sooner or later relapse. In addition, he runs the risk that his relapse may be essentially neurologic and may advance to the stage of irreparable spinal cord injury before the nature of the condition is recognized. On the other hand, if the anemia is of the iron deficiency type and therapy with both liver and iron is continued, the patient is subjected to the expense and inconvenience of taking an unnecessary liver preparation.

It has been stated that it matters little which of the materials effective in pernicious anemia is employed in treatment if the amount used is adequate. Adequate therapy does not mean usual or average. It implies that a sufficient amount of material be administered not only to restore to and maintain the blood at normal in all respects but also to relieve or arrest all the signs and symptoms of the deficiency state. Pernicious and the related macrocytic anemias are diseases that may involve not only the hematopoietic but also the gastro-intestinal and neural systems. Vague "indigestion," soreness of the mouth or tongue, diarrhea, even attacks closely simulating gallbladder disease may be symptoms of the deficiency state of pernicious anemia. Minot has shown that in one third of all patients with pernicious anemia it is these symptoms which are prominent at the onset. Anemia may be slight or absent at this stage. Furthermore, when relapse occurs because of inadequate treatment the symptoms may be predominantly gastro-intestinal with minimal blood changes. The neural changes of pernicious and the related anemias may simulate tabes dorsalis, spastic paralysis or simple polyneuritis. They may occur in the absence of anemia. It is obvious from a consideration of the nature of lesions within the central nervous system that repair of completely degenerated neurons is impossible. However, adequate therapy should and does completely arrest the progress of the lesion. Reeducation in muscular coordination may enable remarkable improvement in function to appear.

The precise procedure to be followed when the diagnosis of pernicious anemia has been established depends on the factors present in the individual case. Transfusion of blood is indicated if "air hunger" or signs of circulatory failure are present at rest in the severely anemic patient. There should immediately be injected intramuscularly 10 units [1] of Purified Solution of Liver. This should be repeated on the next two days and then at weekly intervals until the blood values are normal. It is immaterial whether the 10 units is administered in a single injection or in divided doses. If transfusion is not required, the same routine of liver therapy should be followed for the severely anemic patient. When the patient with pernicious anemia first presents himself with relatively high blood values, i. e., 3,000,000 red blood cells per cubic millimeter or higher, the weekly intramuscular administration of 10 units of Purified Solution of Liver will generally suffice to bring about complete remission of the anemia. In general, parenteral therapy is preferable for the severely anemic patient, particularly as it may be exceedingly difficult to administer an adequate amount of potent material by mouth. Once the erythrocyte response has been well established, however, or if the patient is only moderately anemic when first seen, oral therapy may be employed. A minimum of 10 units of potent material should be given weekly in divided daily dosage until the blood values reach normal. Not infrequently it will be found that the red blood cells will rise steadily from low levels to the neighborhood of 4 million per cubic millimeter with such dosage but that larger amounts of potent material must be administered in order to raise the count to 5 million per cubic millimeter.

Therapy, whether oral or parenteral, with a minimum of 10 units a week should be continued in all cases for at least six months after the blood values have been normal and all other symptoms of the deficiency state have disappeared. Following such a period, one may cautiously proceed to determine the maintenance dose. It is to be emphasized that treatment must never stop in pernicious anemia. Frequently after twelve months of entirely normal existence and blood values it is safe to reduce the dose by half, that is, to 5 units weekly. If injections are employed, the most convenient practice is to administer 10 units every fortnight. If at the end of twelve months on such dosage the patient remains in perfect health, the erythrocytes number 5 million per cubic millimeter or more, and the color index and mean corpuscular volume are normal, one may try a further reduction to 10 units in three weeks or, in some cases, in four weeks. Although many patients may continue satisfactorily with as little material as this, it is to be emphasized that this does not generally occur.

When there is definite evidence that subacute combined degeneration of the spinal cord is present, therapy must be directed at this lesion. It is, of course, essential that sufficient potent material be administered to maintain the blood in an entirely normal condition, but this

1. The Committee of Revision of the U. S. Pharmacopeia has approved the labeling of antianemia preparations in terms of units. A unit is the amount of material which when given daily, either by mouth or by injection, has been shown in the opinion of the Advisory Board to produce satisfactory reticulocyte rises and increases in erythrocytes and hemoglobin in patients with addisonian pernicious anemia.

is not the factor which should determine the amount to be given. A considerable number of patients will show advancing cord lesions in spite of normal blood levels. These patients must receive sufficient material to arrest completely all progress of the cord degeneration. It has been unequivocally established that such arrest can be achieved if sufficient amounts of liver extract are employed. For this purpose, certain individuals may require as much as 5 units daily, an amount that it is almost impossible to administer over a period of months and years by mouth. Accordingly, intramuscular injection of Purified Solution of Liver is the treatment of choice. A minimum of 35 units should be injected during the first week and at least 10 units a week thereafter. If arrest of the degeneration is not evident within a month, this weekly dose should be doubled. The dose that is found adequate to arrest the lesion should be continued for at least a year and then reduced only with great caution, since relapse may be rapid in onset and result in irreparable neural damage before increased therapy again controls the degeneration. It must be borne in mind that patients with pernicious anemia without neural involvement may develop cord degeneration at any time. This may occur even during treatment if insufficient material for the particular individual is being given. Careful neurologic examinations should therefore be made at frequent intervals, and any change for the worse in even a single symptom or sign should be a signal for immediate increase in the amount of therapy.

A certain number of patients presenting themselves with classic pernicious anemia will show definite evidences of iron deficiency during adequate therapy for their primary condition. This manifests itself usually after the erythrocytes have reached 3 million or more per cubic millimeter by a lag in hemoglobin production, the color index falling below unity. Treatment as outlined under hypochromic anemia should then be given in addition to therapy with liver or stomach preparations.

Macrocytic Anemias Related to Pernicious Anemia: Macrocytic anemia of the tropics encountered in association with sprue and pregnancy is to be treated essentially as has been outlined. However, since iron deficiency is so common in both these conditions, adequate therapy for this should be instituted as soon as evidence for its presence is manifest. The same is true for the pernicious (macrocytic) anemia of pregnancy of the temperate zone, and the macrocytic anemia of pellagra. In all these conditions dietary measures alone may suffice to bring about relief of the anemia, because many such patients retain their ability to secrete Castle's gastric factor and hence lack only the dietary or extrinsic factor. As it is a difficult procedure to determine the exact mechanism in an individual case, and as the therapy outlined is satisfactory no matter what the exact mechanism of the deficiency, it is to be recommended for all such patients. In most cases of sprue it appears advisable to continue lifelong treatment as in pernicious anemia. This is likewise true for the macrocytic anemias associated with pathologic conditions of the gastro-intestinal tract such as idiopathic steatorrhea, stenoses and anastomoses, and chronic ulcerative colitis. In the other types of macrocytic anemia, treatment may frequently be omitted following recovery, provided the precipitating factors do not recur (as pregnancy or faulty diet). In all of these anemias, much larger amounts of liver or stomach preparations than the usual requirement in pernicious anemia are frequently necessary. In certain instances of sprue an original dosage for a week or more of 10 or more units daily given by intramuscular injection may be necessary to control alimentary tract symptoms. In any type of macrocyte anemia discussed, resort to parenteral therapy may turn failure or partial success with oral therapy into a satisfactory result because of the convenience of giving large dosage of active principle by the former method.

(*b*) *Hypochromic Anemia.*—Iron in suitable form is the essential and most useful therapeutic agent in these conditions, irrespective of whether prolonged faulty diet, improper assimilation or chronic blood loss is the chief etiologic agent bringing about the condition. Copper and other metals have not been proved of clinical value. Some of the official preparations of iron with the approximate daily dose necessary to secure maximum effects are Reduced Iron 3 Gm. (45 grains), Mass of Ferrous Carbonate 4 Gm. (60 grains), Pills of Ferrous Carbonate 4 Gm. (60 grains), Iron and Ammonium Citrates 6 Gm. (90 grains) and Ferrous Sulfate 1 Gm. (15 grains), the dose calculated on the weight of the exsiccated salt.

The first three are relatively insoluble, the last two freely soluble. When these doses are employed there is little difference in the efficacy of the various preparations, although it is possible that in the presence of achlorhydria the soluble forms are superior. From the point of view of convenience to the patient the smaller effective dosage provided by ferrous compounds is an advantage. Preparations can be administered in capsules or coated tablets. Elixirs and syrups are useful vehicles for the treatment of small children. Iron should be administered daily in divided doses immediately after meals in order to minimize gastric irritation. It is rarely if ever necessary to administer iron parenterally. Should disturbances of the enteric tract be so severe that iron cannot be given by mouth, from 0.1 to 0.2 Gm. of Green Iron and Ammonium Citrates, U. S. P. XI, may be injected intramuscularly daily. However, marked local and systemic reactions not infrequently occur. Smaller doses of this or any other iron compound are of no significant value. Since the maximum gain in hemoglobin following the injection of iron is limited by the amount injected calculated as metallic iron, organic compounds of iron offer no advantages. The smaller dose of Green Iron and Ammonium Citrates given corresponds to 16 mg. of Fe and can contribute to the manufacture of but 0.6 per cent of hemoglobin in an average size adult. Thirty such injections must therefore be given to raise the hemoglobin by 20 per cent. It is to be emphasized again that iron, like liver, has no "stimulating" effect on blood formation, and accordingly such injections will raise the hemoglobin only if the anemia is due to a deficiency of available iron within the body.

In certain cases of "iron deficiency" anemia there appears to be an inability on the part of the patient to obtain sufficient iron from an adequate intake of food iron. Such individuals and those with constant losses of iron (chronic bleeding, pregnancy and so on) should continue maintenance doses of iron, approximately one-third to one-half the amounts stated. Other patients ordinarily require no further therapy after the blood values are normal. Certain patients with hypochromic anemia may suffer from a partial deficiency of other materials necessary for the manufacture of the hemoglobin molecule. There is evidence that the daily administration by mouth of 200 Gm. of whole liver or

the Whipple "secondary anemia fraction" derived from such an amount of liver will cause blood regeneration in certain cases of hypochromic anemia, especially when chronic blood loss is the dominant etiologic factor. However, the amount of material necessary for effectiveness comparable to that of iron preparations in small quantity makes the use of either whole liver or the Whipple fraction of little clinical value. In combination with iron, such a liver fraction can be regarded only as a relatively inert and bulky component of the preparation.

(*c*) *Anemia Due to Deficiency of Vitamin C.*—The daily administration of 6 ounces of orange juice or 100 mg. of cevitamic acid (N. N. R.) is sufficient to alleviate the type of anemia due to deficiency of vitamin C, which occasionally occurs in association with scurvy.

(*d*) *Anemia Due to Deficiency of Thyroid Secretion.*—This usually mild anemia is relieved by the administration of the amount of thyroid substance that will raise the basal metabolic rate to the normal range. In certain instances more severe anemias occurring with associated deficiencies of either iron or "liver extract" may require treatment as outlined in the preceding sections.

ANEMIA DUE TO TOXIC INHIBITION, PHYSICAL INJURY OR MECHANICAL INTERFERENCE WITH THE BLOOD-FORMING ORGANS

In all anemias due to toxic inhibition, physical injury or mechanical interference with the blood-forming organs, therapy must be directed essentially at the underlying cause of the anemia. Transfusion of blood may be of significant temporary benefit but has no specific effect. Iron, liver, stomach and so on are usually of no value but may be employed in maximal doses in order to alleviate any associated deficiency state. If the daily intramuscular injection of 5 units of Purified Solution of Liver for ten days does not produce a significant reticulocyte response, the possibility of pernicious anemia being present is minimized.

IDIOPATHIC DISTURBANCES OF THE BLOOD-FORMING ORGANS

In general, idiopathic disturbances of the blood-forming organs are not amenable to drug therapy. Certain types of congenital anemias of infants are cured by repeated transfusions. Cooley's anemia and "aplastic anemia" may be temporarily benefited by transfusion of blood. The macrocytic anemia of liver disease does not respond to any form of therapy unless there is an associated deficiency either of iron or of "liver extract." It is accordingly worth while to employ a therapeutic test with each of these substances in such cases. "Splenic" anemia (Banti's syndrome) very frequently is hypochromic in variety and due to a virtual deficiency of iron, in which case iron therapy is of distinct value. In many instances, however, no treatment is of any avail.

CONCLUSION

Anemias may be divided for therapeutic purposes into two main groups, those due to nutritional deficiency and those due to other causes. The anemias of the first group respond brilliantly to the administration of the proper therapeutic agents, whereas for those of the second group there is no specific drug therapy. Diagnosis is of primary importance in defining the nature of the treatment and the results to be expected from it.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

ULTRATHERM, MODEL G, ACCEPTABLE

Manufacturer: Adlanco X-Ray Corporation, New York.

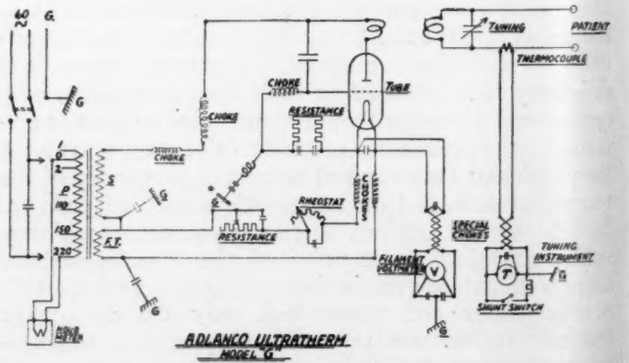
The Ultratherm, Model G, is recommended for medical and surgical diathermy. It is a one-tube machine with a fixed wavelength of about 6 meters. The output of the machine is controlled by means of a rheostat to govern the voltage on the filament. There is a tuning condenser in the patient's circuit so that it can be brought into resonance. For the treatment of patients, different sized electric field electrodes with different air-gap distances or felt layers are used and are provided as regular equipment.

When this machine is operated under full load it draws approximately 1,000 watts. Since no reliable method has been proposed to measure the output of energy available to the patient, the value is not given.

Adlanco Ultratherm, Model G.

The manufacturer submitted evidence intended to substantiate the claims made for the unit. Five-inch glass air-gap electrodes were anteriorly applied to determine whether these electrodes used on the machine were effective in producing heat within the tissues of a thigh of a human subject.

Three vigorous adult male medical students ranging from 150 to 180 pounds were used for the experiments. Two trocars placed in hard rubber cannulas were inserted into the thigh. One was inserted midway between Poupart's ligament and the knee and straight down into the depth of the muscular tissue until the instrument was at an approximate depth of 2 inches, or until the femur was encountered. The second was introduced as nearly parallel to the skin as possible and subcutaneously at an approximate depth of one-eighth inch. The trocars were removed, leaving the rubber cannulas in situ. Temperature measurements were then taken by means of thermocouples of the hypodermic needle type and introduced through the cannulas. The constant junction was immersed



Schematic diagram of circuit.

in ice enclosed in a quart vacuum bottle. The electromotive force due to the difference in temperature of the junctions was read in millivolts from the Leeds and Northrup portable potentiometer. The thermocouples were calibrated in degrees Fahrenheit against a Bureau of Standards certified thermometer. Initial temperatures were taken and then each subject was submitted to a twenty minute application of maximum current intensity consistent with skin comfort. At the end of this period, temperatures were again recorded until the temperature began to drop. The highest temperature attained was recorded as final temperature in each instance. Oral temperatures also were taken.

The glass air-gap electrodes were placed anteriorly (in the same plane) on the thigh equidistant from the cannulas. The

distance between electrodes, center to center, was about 9 to 11 inches. The distance from the skin to the metallic electrode (inside the glass) was about 1¼ inches.

Each reading that follows is the average of six observations obtained on the glass air-gap electrodes, applied anteriorly; that is, in the same plane:

Deep Muscle Temp. F.		Subcutaneous Temp. F.		Oral Temp. F.	
Init.	Final	Init.	Final	Init.	Final
98.9	106.6	97.4	105.2	98.7	99.1

It is interesting to note that application of the electrodes on the upper surface showed a substantial rise in temperature, whereas the application of the electrodes posteriorly to the thigh—one distal to the buttocks and the other proximal to the knee—did not show as high a temperature rise. With the electrodes adjusted laterally, i. e., one on the medial aspect of the thigh and the other on the lateral aspect, the temperature rises were not as high as those obtained with the anterior application.

The results indicate that the temperature rise, with use of the aforementioned method of application, is considerably above what can be expected from the application of conventional diathermy—with a metal electrode on the medial aspect of the thigh and another metal electrode on the lateral aspect of the thigh—the method of application that has been adopted as a minimum standard of acceptance.[1]

The temperature rise of the transformer, after the machine had been operated at full load for two hours, came within the limits of safety prescribed by the Council. The shipping weight of the apparatus is about 200 pounds. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is much less than with conventional diathermy.

The machine was installed in a clinic acceptable to the Council and operated under actual clinical conditions. It was reported as giving satisfactory service. In view of the favorable report based on the performance of this unit when glass air-gap electrodes, applied anteriorly, were used, the Council on Physical Therapy voted to include the Ultratherm, Model G, in its list of accepted devices.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATINOS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

LIBBY'S LOGANBERRY JUICE, DILUTED AND UNSWEETENED

Manufacturer.—Libby, McNeill & Libby, Chicago.

Description.—Canned loganberry juice.

Manufacture.—Mature loganberries are washed and the juice is extracted mechanically, clarified, and sugar syrup is added; the sweetened juice is filled into cans, processed under vacuum, and cooled.

Analysis (submitted by manufacturer).—Moisture 83.1%, ash 0.2%, fat (ether extract) 0.01%, protein (N × 6.25) 0.2%, total sugars 15.0%, crude fiber a trace, carbohydrates other than crude fiber (by difference) 15.3%, total acidity (as malic acid) 1.2%, p_H 3.02, sodium (Na) 0.024%, potassium (K) 0.084%, calcium (Ca) 0.008%, magnesium (Mg) 0.009%, iron (Fe) 0.0004%, phosphorus (P) 0.005%, sulfur (S) 0.002%, chlorine (Cl) 0.013% and iodine (I) 0.02%.

Calories.—0.62 per gram; 17.6 per ounce.

Claims of Manufacturer.—A wholesome canned fruit juice.

1. Mortimer, Bernard, and Osborne, S.L.: Tissue Heating by Short Wave Diathermy, J. A. M. A. **104**: 1413 (April 20) 1935.

SEXTON BRAND WHOLE BEETS, WATER PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned whole beets, packed in water.

Manufacture.—Beets are washed, graded, precooked to loosen the skins, mechanically peeled, inspected, again graded and filled in cans. The cans are filled with water, sealed and processed at 113 C.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 87.2%, total solids 12.8%, ash 0.51%, fat (ether extract) 0.1%, protein (N × 6.25) 1.5%, crude fiber 0.92%, carbohydrates other than crude fiber (by difference) 9.8%.

Calories.—0.46 per gram; 13 per ounce.

Claims of Manufacturer.—Choice quality whole beets packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

(*a*) LIBERTY BRAND CRYSTAL WHITE SYRUP
(*b*) LIBERTY BRAND GOLDEN SYRUP

Distributor.—G. H. Wetterau & Sons Grocer Company, St. Louis.

Packer.—Union Starch and Refining Company, Granite City, Ill.

Description.—(*a*) A table syrup; corn syrup sweetened with sucrose; flavored with vanilla extract—the same as Pennant Crystal White Syrup (THE JOURNAL, Jan. 30, 1932, p. 403).

(*b*) A table syrup; corn syrup flavored with refiners' syrup—the same as Pennant Golden Table Syrup (THE JOURNAL, Jan. 30, 1932, p. 403).

Claims of Manufacturer.—For table use and as a carbohydrate supplement for milk modification in infant feeding.

FAULTLESS BRAND TOMATO JUICE

Distributor.—The L. E. Elliott Brokerage Company, Salina, Kan.

Manufacturer.—Marshall Canning Company, Marshalltown, Iowa.

Description.—Tomato juice seasoned with salt, retaining in high degree the natural mineral and vitamin values. The same as Faultless Brand Tomato Juice (THE JOURNAL, July 18, 1936, p 213).

DODGE BRAND VEG-ALL

Distributor.—Haas Brothers Company, San Francisco.

Packer.—The Larsen Company, Green Bay, Wis.

Description.—Mixture of carrots, potatoes, celery, green beans, cabbage, peas, corn, lima beans, onions, sweet peppers, salt and water prepared by efficient methods for retention in high degree of the natural mineral and vitamin values; the same as the accepted Larsen's Veg-All for Soups, Salads, Vegetable Dishes (THE JOURNAL, Aug. 12, 1933, p. 525).

DOWNING BRAND EVAPORATED MILK

Distributor.—Downing Brother's Dairy, Rock Island, Ill.

Packer.—Amboy Milk Products Company, Amboy, Ill.

Description.—Canned, unsweetened evaporated milk, the same as Amboy and Melody Brands Unsweetened Evaporated Sterilized Milk (THE JOURNAL, May 7, 1932, p. 1655).

RED TURKEY BRAND HAWAIIAN PINEAPPLE TID-BITS

Distributor.—J. B. Maltby Company, Corning, N. Y.

Packer.—Hawaiian Pineapple Company, San Francisco.

Description.—Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole canned pineapple (THE JOURNAL, April 8, 1933, p. 1106).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 14, 1936

THE NOBEL PRIZE IN MEDICINE

The Nobel prize in medicine and physiology for 1936 has been awarded jointly to Sir Henry Dale of London, England, director of the National Institute for Medical Research at Hampstead, and Prof. Otto Loewi of the University of Graz, Austria, for their work on the transmission of the nerve impulse. Sir Henry Dale is 61 years of age. He was born in London and was educated in that city. From 1904 to 1914 he was director of the Wellcome Physiological Research Laboratories. He has been secretary of the Royal Society of Medicine since 1925 and a member of the General Medical Council since 1927. He came to the United States in 1919 and delivered the Herter Lectures at Johns Hopkins University, Baltimore, and again in 1933 to deliver the Charles Dohme Lectures, the subject being at the latter time "Progress in Autopharmacology, A Survey of Present Knowledge of the Chemical Regulation of Certain Functions by Natural Constituents of the Tissues." His Linacre Lecture on "Chemical Transmission of the Effects of Nerve Impulses" was published in the *British Medical Journal* May 12, 1934; his Dixon Memorial Lecture on "Pharmacology and Nerve Endings" was published in the *Proceedings of the Royal Society of Medicine* in January 1935. Among numerous other publications, Sir Henry Dale and his associates published a paper entitled "Release of Acetylcholine at Voluntary Motor Nerve Endings," in the *Journal of Physiology* May 4, 1936.

Prof. Otto Loewi is 63 years of age. He was born in Frankfort-on-the-Main, Germany, and graduated at Strasbourg in 1896. After working for a time at Frankfort under von Noorden, Dr. Loewi entered the Pharmacologic Institute at Marburg in 1896. He went to Vienna as a professor in 1906 and since 1909 has been director of the Faculty of Pharmacology at the University of Graz. Among his numerous writings was a paper, written in collaboration with E. Pichler, entitled "Glycogen Metabolism in Muscle and Its Nervous Control; Proprioceptive Glycogenetic Reflex," published in 1933. Dr. Loewi came to New York in 1933 to deliver a Harvey Lecture on "The Humoral Transmission of Nervous Impulses." He has published papers also on diuresis, the vegetative nervous system, diabetes, and other subjects.

In 1895 Alfred Nobel gave several millions of dollars to found the Nobel Commission, which he directed to award the interest each year among the five persons who in the preceding year had contributed the greatest work in medicine and physiology, in physics, in chemistry, in literature, and for the peace of the world. The final selection of the individual to receive the Nobel prize in medicine and physiology rests with the faculty of the Caroline Institute in Stockholm. The prize consists of a medal, a diploma and about $40,000 in cash. The medical prize was awarded to persons living in the United States or Canada in 1912 (Carrel), in 1923 (Banting and Macleod), in 1930 (Landsteiner) and in 1934 (Minot, Murphy and Whipple).

BIG BABIES AND DIABETES

Repeatedly the observation has been noted in medical literature that diabetic mothers have large babies. Joslin has pointed out that fat babies born dead suggest examination of the parents for diabetes. Bowcock and McCord [1] have reported an instance of a mother giving birth to babies said to have weighed 12, 15½, 14 pounds, and 12 pounds 2½ ounces (5,443, 7,030, 6,350 and 5,514 Gm.). In her sixth pregnancy, after normal gestation, she bore a baby weighing 12 pounds 2 ounces (5,500 Gm.). In her seventh pregnancy she developed diabetes and, when labor was induced, gave birth to dead twins weighing a little over 3 pounds (1,360 Gm.) each. By the use of insulin and diet she was made sugar free. When she next became pregnant she was kept sugar free without insulin, on a restricted diet, and gave birth at term to a baby weighing 13 pounds 7½ ounces (6,109 Gm.). All the babies were oversize in respect to height and weight.

In a record of large babies born in Great Britain, Dr. W. F. Christie [2] indicates that infants heavier at birth than 10 pounds (4,535 Gm.) may be postmature rather than obese and does not indicate any relationship to possible diabetes. The largest babies born, according to American medical records, include a case described by Dr. D. P. Belcher [3] of a woman who gave birth to a baby girl (stillborn) that weighed 25 pounds (11,340 Gm.). There is also an authentic record of a baby born in Italy weighing 24⁹⁄₁₀ pounds (11,294 Gm.), and Birnbaum discusses the case of a child weighing 11,300 Gm. at birth.

A most comprehensive recent consideration of the subject is that of Kaern.[4] Weight of the new-born above 6,000 Gm. is apparently found once in 200,000

1. Bowcock, Harold, and McCord, J. R.: The Occurrence of Diabetes During Pregnancy in a Woman Bearing Large Babies, J. A. M. A. **94**: 1917 (June 14) 1930.
2. Christie, W. F.: Prodigious Infants, Brit. M. J. **1**: 373 (Feb. 23) 1935.
3. Belcher, D. P.: A Child Weighing Twenty-Five Pounds at Birth, J. A. M. A. **67**: 950 (Sept. 23) 1916.
4. Kaern, T.: On the Birth of Abnormally Big Children, Acta obst. et gynec. Scandinav. **16**: 189-201, 1936.

births, while weight exceeding 4,000 Gm. is met in every thirty births. Surgical intervention usually becomes necessary when the child weighs more than 4,500 Gm. Kaern considers protracted pregnancy the chief factor responsible for increased fetal growth. The race, constitution and heredity of the parents, the age of the mother, the previous childbirths, and particularly pregnancy in diabetic women not treated with insulin are also important etiologically. In the delivery of large babies, the difficulties concerned with the shoulders are especially significant. The death rate among large babies is 14.9 per cent, in contrast to the average death rate of 3.2 per cent. Kaern is convinced that when there is a suspicion of giant birth it is not only justifiable but even indicated to induce delivery at a time when the fetus is deemed to have acquired normal birth weight. The suspicion of a giant child arises particularly in cases in which the woman has previously given birth to large children or the pregnancy lasts too long. Obviously, the presence of diabetes demands immediate control by restricted diet and insulin. The classic contribution on this subject by Randall and Rynearson,[5] published recently in THE JOURNAL, merits most careful consideration by every physician interested in obstetrics, metabolism and the care of the child.

LIFE EXTENSION INSTITUTE ENJOINED FROM PRACTICING MEDICINE

The Life Extension Institute, a New York corporation, has been enjoined from practicing medicine in that state. Since its organization in 1914, this corporation has been engaged in promoting and conducting periodic medical examinations on a nation-wide scale. It has had contracts with large insurance companies for the annual examination of policyholders through local cooperating physicians paid by the corporation. It has made similar services available to individuals. While the medical examinations were made by local physicians, the reports were forwarded to the central office of the corporation and there reviewed by its medical staff. Suggestions with respect to needed medical treatment were outlined by the home office and transmitted to the examinees. Urinalyses four times each year constituted a part of the services rendered by the corporation to examinees. For making these physical examinations and for reporting to the examinees, the institute made a charge considerably in excess of the amount paid by it to local examining physicians. In 1935 the state instituted proceedings in the Supreme Court of New York, New York County, to dissolve the corporate status of the corporation and to revoke its charter on the ground that its activities constituted the practice of medicine, in which practice it could not lawfully engage. By consent of the parties, the Supreme Court appointed a referee to determine the issues.

After a number of hearings but before the state had finished presenting its evidence against the Life Extension Institute, the hearings were suspended because of negotiations between the Life Extension Institute and the state's attorney general to effect a settlement out of court. A stipulation was signed by the institute and by the attorney general in which the institute voluntarily assented to the entry of a decree against it, to embody the prohibitions and other provisions contained in the stipulation. The decree was thereafter entered enjoining the corporation from "practicing medicine and/or from holding itself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition and/or from offering or undertaking, by any means or method, to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition." Furthermore, the decree specifically denies to the corporation the right to engage, directly or indirectly, in making physical examinations or reports and recommendations based on such examinations and from employing any physician to perform these activities for it. The corporation is permitted, under the decree, to maintain laboratories and to employ physicians to perform such services as may be legal and proper in connection with the operation of such laboratories. The corporation may, for compensation, supply "services" to physicians and others, when such services do not constitute the practice of medicine. It may not, however, receive any part of the compensation paid to physicians for the rendition of medical services. The corporation may not direct, supervise or control the medical services rendered by any physician who has been furnished any "services" by the corporation. The corporation may furnish to any physician who is interested in and specializes in life extension work "offices, laboratory facilities, work or services, financial assistance, clerical and other lay help, files, records, data, statistics and any other utilities or services not of a medical character." It is expressly stipulated, however, that the corporation may in no event receive from such physicians compensation constituting "an interest, direct or indirect, in fees to be paid said physician or group of physicians for professional services in the practice of medicine." In view of the stipulation and the decree that was based thereon, no judgment was rendered dissolving the corporation.

Under the decree, the Life Extension Institute may continue to exercise corporate powers but may not practice medicine, directly or indirectly, in any form. The referee, in the opinion that he filed along with the entry of the decree, emphasized the fact that a statute prohibiting the corporate practice of medicine serves a wholesome purpose, because the relation between a physician and his patient is and must be a personal and confidential one, which can exist only when the physician is a natural person.

5. Randall, L. M., and Rynearson, E. H.: Delivery and Care of the New-Born Infant of the Diabetic Mother, J. A. M. A. **107**: 919 (Sept. 19) 1936.

Current Comment

MORTALITY FROM TUBERCULOSIS

The New York Tuberculosis and Health Association has recently summarized in an easily understandable form the deaths occurring from tuberculosis in the larger cities of the United States during the years 1934 and 1935. The total mortality of forty-six large American cities was 71.4 per hundred thousand in 1934 and 69.6 per hundred thousand in 1935. The third largest city in the group, Philadelphia, showed one of the largest declines, 12 per cent. The largest percentage decline was, however, that of Oklahoma City, which showed a 40 per cent reduction from 1934 to 1935 and gave in 1935 the lowest death rate for tuberculosis of any city in the list. The Negro tuberculosis mortality was given for forty-three cities during these years. In all instances the death rate among the Negroes was markedly higher than among the white population of the same cities. In many instances it was four or five times as large. The trend of mortality was also not as favorable among the Negroes as among the white population, though this might possibly be due to factors such as migration, which cannot be estimated from the gross figures given. Thus, the figures cited revealed a gross increase in deaths from tuberculosis among Negroes 0.4 per cent higher in 1935 than in 1934. As has been repeatedly pointed out, however, gross figures are difficult of analysis other than to show a general trend.

SULFHYDRYL IN DIBENZANTHRACENE CARCINOMA

A number of compounds containing the sulfhydryl group have been shown to increase the rate of cell division under certain conditions. Also it has been repeatedly demonstrated that a number of phenanthrene derivatives, including 1, 2, 5, 6-dibenzanthracene, are carcinogenic when repeatedly applied to the skin of mice. Questions logically arise regarding the effect of applying the two substances sulfhydryl and dibenzanthracene simultaneously. One might expect that a synergistic effect would be produced and that there would be a greater percentage of tumor incidence in the treated animals and perhaps also that a shorter period would be required for the development of the growth. This possibility has been subjected recently to an experimental study.[1] Large numbers of white mice were treated daily, six days a week, for as long as twelve to fifteen months with either dibenzanthracene alone or with this substance and the sulfhydryl compound parathiocresol, applied either singly or in combination on alternate days or during alternate periods of several weeks each. The time of appearance of tumors was recorded and the growth was examined histologically. Contrary to what might be expected, there was a decided decrease in the incidence of tumor formation and, in those animals in which a tumor did appear, there was an increase in the length of the period required for the development of the growth. A microscopic examination revealed rather characteristic changes in the skin of the treated animals. The skin of the mice treated with parathiocresol alone was characterized by the presence of larger numbers of epithelial cells than normal skin and the various layers of the epiderm and the basement membrane were defined more clearly. There was little or no inflammatory reaction in the epiderm itself or in the underlying tissues. The skin of the animals treated with dibenzanthracene alone was also thickened and the layers were well defined but to a less extent than those in the skin to which parathiocresol had been applied. In contrast to the response to the sulfhydryl compound, however, inflammatory reactions were nearly always observed and keratinization of the skin was much more pronounced. Both types of histologic response were usually observed in the skin of the animals treated with the combinations of sulfhydryl and dibenzanthracene. According to the authors, the apparent anticarcinogenic effect of the sulfhydryl compound is not due to a simple, direct chemical "neutralization" of the two compounds but is exerted by way of the animal itself and specifically involves the skin.

1. Reimann, S. P., and Hall, Edith M.: Protective Action of Sulfhydryl Against Carcinogenesis Induced with 1, 2, 5, 6-Dibenzanthracene, Arch. Path. **22**: 55 (July) 1936.

THE TREATMENT OF MALARIA

The multiplicity of therapeutic agents now available for the treatment of malaria and the conflicting claims of efficacy made for them create much therapeutic confusion. To date the most authoritative consideration of the question is the report of the Malaria Commission published in the *Quarterly Bulletin* of the Health Organisations of the League of Nations.[1] The extensive review of the action and value of the various drugs embodied in this report is based on numerous laboratory and clinical observations. The status at the time of the report is summarized thus: "The new synthetic remedies now available are still in the experimental stage, and they [members of the commission] consider that the time has not yet come when any of these drugs can be recommended as substitutes for, or in preference to, quinine and other preparations of cinchona bark." The commission believed that quinine is effective for the purpose of clinical prophylaxis and that it remains the best drug to use. It is not good practice, according to the commission, to treat attacks of malaria in the acute stage with more than one of the specific drugs available. For treatment of an acute attack of benign tertian and quartan malaria, quinine and atabrine seem to be about equally effective. Atabrine, however, is definitely superior to quinine for the treatment of acute attacks of malignant tertian malaria. For the treatment of relapses the commission felt that no drug or combination of drugs seems yet to be available which will sterilize all the parasites in the human host and thus prevent the possibility of relapse. Plasmochin, unlike quinine and atabrine, has a powerful action against the gametocytes of malignant tertian malaria. The problem therefore retains some characters of confusion, much of which, however, can be eliminated by knowledge of the indications and limitations of the more widely used preparations.

1. The Therapeutics of Malaria: Third General Report of the Malaria Commission, Quart. Bull. Health Organ. of League of Nations **2**: 181 (June) 1933.

Association News

THE ATLANTIC CITY SESSION

Application Blanks Now Available for Space in the Scientific Exhibit

Application blanks for space in the Scientific Exhibit at the Atlantic City session are now available. The Committee on Scientific Exhibit requires that all applicants for space fill out the regular form. Applications close Feb. 1, 1937.

Blanks may be obtained from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago.

RADIO BROADCASTS

The American Medical Association and the National Broadcasting Company are presenting the second series of dramatized health broadcasts under the title Your Health. The first broadcast in the new series, the thirty-second dramatized cooperative broadcast under the title Your Health, was given October 13. The theme for 1936-1937 differs slightly from the topic in the first series, which was "medical emergencies and how they are met." The new series is built around the central idea that "100,000 American physicians in great cities and tiny villages, who are members of the American Medical Association and of county and state medical societies, stand ready, day and night, to serve American people in sickness and in health."

The program will go out on the Blue network instead of the Red, as originally announced. The announcement cards that were sent out when the program was planned for the Red network can be changed simply by substituting the word "Blue" for "Red" where it occurs.

The topics are announced monthy in advance in *Hygeia*, the Health Magazine, and three weeks in advance in each issue of THE JOURNAL. The topics and speakers for the next three programs are:

November 17. Football Injuries. Morris Fishbein, M.D.
November 24. Be Thankful. W. W. Bauer, M.D.
December 1. "Smog." W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Society News.—Dr. Charles LeBaron, Gulfport, Miss., was chosen president of the Gulf Coast Clinical Society at its meeting in Mobile, October 16. Other officers are Drs. Herbert L. Bryans, Pensacola, Fla., and James H. Dodson, Mobile, vice presidents, and Mozart A. Lischkoff, Pensacola, secretary.

CALIFORNIA

Plague Infection in San Bernardino County.—According to *Public Health Reports*, plague-infected fleas were found in San Bernardino County recently. Fleas collected from ground squirrels were inoculated into a guinea-pig and the animal showed typical plague infection on the fifth day. In 1933 a human case of plague was suspected to have originated in San Bernardino County, and during the present year positive plague agglutination was found in the blood of another person after a mild illness that occurred while camping in this county.

Society News.—Dr. Maude E. S. Abbott, Montreal, Canada, addressed the San Francisco County Medical Society, November 10, on "Congenital Heart Disease."——Comdr. Joel T. Boone, San Diego, chief medical officer of the fleet marine force, U. S. Navy, presented "Reflections of a White House Physician" before the Hollywood Academy of Medicine, November 5.——At a joint meeting of the Los Angeles Society of Neurology and Psychiatry, the Southern California Society for Mental Hygiene and the California branch of the American Eugenic Society, November 9, a symposium on some medical aspects of mental hygiene was presented by Drs. Arthur R. Timme, Rupert B. Raney, Eugene Ziskind and Samuel D. Ingham. All are from Los Angeles.

Scope of Chiropractic Practice.—According to a decision recently handed down by the superior court of California, city and county of San Francisco, in *McGranaghan* v. *Berger et al.* chiropractors in California may not prescribe or administer drugs, use electrotherapy, hydrotherapy or other forms of physical therapy, may not practice surgery or obstetrics, may not "treat the eye, ear, nose and throat" and may not reduce fractures generally. The chiropractic initiative measure, said the court, in authorizing chiropractors to practice chiropractic "as taught in chiropractic schools and colleges" does not confer on chiropractors the right to employ any agency the use of which may be taught in chiropractic schools. The agency must constitute chiropractic and must not fall within the field of the practice of medicine and surgery. The measure in further permitting chiropractors to use "all necessary mechanical and hygienic and sanitary measures incident to the care of the body," permits chiropractors, in the opinion of the court, to use roentgen rays for diagnostic but not for therapeutic purposes.

CONNECTICUT

Meeting of Alumni Association.—Dr. Arthur M. Yudkin, clinical professor of ophthalmology, Yale University School of Medicine, New Haven, was elected president of the Association of Yale Alumni at its recent annual meeting. He succeeded Dr. George Blumer, David P. Smith clinical professor of medicine at Yale. Other officers include Dr. Clyde L. Deming, New Haven, chairman of the executive committee, and Dr. Philip Frank, Brooklyn, N. Y., chairman of the literary committee, succeeding the late Lafayette B. Mendel, Ph.D.

DISTRICT OF COLUMBIA

Request for Health Centers.—A request of Dr. George C. Ruhland, health officer of the District, for two new health centers was endorsed by the Medical Society of the District of Columbia at a meeting, October 7. Dr. Ruhland has asked for $1,250,000 to construct five medical centers over a period of years, the first two to be started next year, newspapers reported.

Society News.—The Medical Society of the District of Columbia was addressed, November 11, by Dr. Edmund Horgan on "New Technic for Thoracoplasty," and Mr. J. E. Curtis, superintendent, "Purification of the Water in the Washington Filtration Plant." The society will be addressed, November 18, by Drs. George Louis Weller Jr. on "Bone Marrow Findings in the Diagnosis of Certain Blood Dyscrasias," and Robert E. Moran, "Plastic Surgery Around the Orbit."

Campaign Against Diphtheria.—The department of health of the District launched a diphtheria immunization campaign, October 5, to continue six weeks. It is aimed to reach preschool and kindergarten children, clinics to be conducted in designated public schools. Public interest will be stimulated through the radio and press. The staff of the health department will be augmented on a temporary part time basis, this increase in expenditures to be financed by social security funds.

GEORGIA

Georgia's Health.—There were 34,313 deaths reported in Georgia in 1935, giving a death rate of 11.3 per thousand of population as compared with 11.8 in 1934. Deaths from automobile accidents, showing a gradual increase since 1921, jumped from 774 deaths in 1934 to 903 deaths in 1935, giving respective rates, per hundred thousand of population, of 25.7 and 29.8. Heart disease accounted for 5,071 deaths in 1935 and a rate of 167.3, as compared with a total of 5,019 deaths and a rate of 166.9 in 1934. A decrease was noted for cancer, 1,715 deaths being registered in 1935 with a rate of 56.6, as compared with 1,762 deaths in 1934 and a rate of 58.6. The department of health reports that for many years smallpox was an important cause of death in Georgia. In the past five years, however, there has not been more than one death annually attributed to this cause. In 1935 there were 365 deaths from pellagra, giving a rate of 12, while in 1934 there were 351, a rate of 11.7. Malaria accounted for 387 deaths and a death rate of 12.8.

Society News.—The Thomas County Medical Society was addressed at Thomasville recently by Drs. Chapman Q. Dykes, Carrabelle, Fla., on treatment of pneumonia, and Simeon E. Sanchez, Barwick, cancer.——At a recent meeting of the Muscogee County Medical Society in Columbus, Dr. Daniel C. Elkin, Atlanta, spoke on "The Surgical Treatment of Tuber-

culosis," and Dr. William C. Warren Jr., Atlanta, "The Intracranial Complications of Otitis and Mastoiditis."——A symposium on syphilis was presented before the Seventh District Medical Society at its meeting in Marietta, September 30.——Dr. Thomas F. Harper, Coleman, addressed the Randolph County Medical Society in Cuthbert, October 1, on pellagra.——The Ware County Medical Society at its meeting in Waycross, October 7, heard Dr. Wilbur C. Hafford discuss inguinal granuloma.——Among others, Dr. Charles D. Bowdoin, Atlanta, spoke on "The Present Status of Malaria and Its Treatment" before the Eighth District Medical Society in Douglas, October 13.

ILLINOIS

Society News.—Dr. Eric Oldberg, Chicago, addressed the Sangamon County Medical Society, Springfield, November 5, on "The Cerebrospinal Fluid."——Dr. Willard Van Hazel, Chicago, addressed the Winnebago County Medical Society in Rockford, October 13, on "Surgery of the Lungs and Pleura."——Drs. John P. O'Neil and Joseph A. Jerger, both of Chicago, discussed artificial fever therapy before the Kane County Medical Society in Elgin, October 14.

Chicago

Society News.—Dr. Charles Gordon Heyd, New York, President, American Medical Association, will address the Chicago Medical Society, November 18, on "'Liver Deaths' and the Complications of Gallbladder Surgery," and Dr. Ralph C. Sullivan, clinical professor of surgery, Loyola University School of Medicine, "The Operating Room Diagnosis of the Gallbladder." Dr. George W. Crile, Cleveland, addressed the North Side Branch of the society, November 5, on "Comparative Anatomy of the Energy Controlling System."——Among others, Drs. Harry P. Ritchie, St. Paul, and Otto W. Yoerg, Minneapolis, discussed "Another Suggestion in the Technic of Cholecystectomy for the Selected Case" and "Fracture of Os Calcis" respectively before the Chicago Surgical Society, November 6.——At a meeting of the Chicago Council of Medical Women, November 6, Dr. Marie Ortmayer discussed "Clinical Values of Gastroscopy."——The Chicago Pathological Society was addressed, November 9, by Dr. Paul R. Cannon and George Hartley Jr. on "The Inadequacy of Allergic Inflammation as Protection Against Infection with Virulent Pneumococci."——Prof. Bernhard Dattner of the University of Vienna addressed the German Medical Society of Chicago, November 3; his subject was "Modern Therapy of Neurosyphilis." Dr. Dattner gave a lecture at Michael Reese Hospital, November 2, on "Nervous Manifestations of Alimentary Hypersensitivity."——At a meeting of the Chicago Gynecological Society, November 20, papers will be presented by Drs. William C. Danforth, Evanston, Ill., on "Carcinoma of the Cervix During Pregnancy"; William B. Serbin, "Splenomegaly in Pregnancy," and Julius E. Lackner and Leon Krohn, "Effect of Ovarian Hormones on the Human (Nonpuerperal) Uterus."——The Chicago Orthopaedic Society was addressed, November 13, by Drs. W. Eugene Wolcott, Des Moines, Iowa, on "The Circulation of the Hip with Practical Suggestions Regarding Prognosis in Certain Types of Fractures of the Neck of the Femur" and Frank G. Murphy, "Osteochondritis Dissecans."

INDIANA

The Service of Dr. Wishard.—At the October meeting of the board of trustees of Indiana University, resolutions were passed in commemoration of the many years of service to the medical school of Dr. William N. Wishard, who recently retired as professor and chairman of the department of genito-urinary surgery. He had occupied this position since 1897 (THE JOURNAL, August 22, p. 592).

Society News.—Dr. Frank C. Walker will discuss "Bladder Symptoms Secondary to Cervical Lesions" before the Indianapolis Medical Society, November 17, and Dr. Dudley A. Pfaff, "Pancervical versus Supracervical Hysterectomy." The society will be addressed, November 24, by Drs. Edwin W. Dyar Jr. on "Eye Problems in Childhood" and Francis C. Smith, "Dermatology in Pediatrics." Dr. Harrison S. Martland, Newark, N. J., spoke on the relation of medicine to crime, November 10.——The Wayne-Union Counties Medical Society was addressed in Richmond, October 22, by Dr. George S. Bond, Indianapolis, on cardiology.——At a meeting of the Montgomery County Medical Society in Crawfordsville, October 22, Dr. James F. Balch, Indianapolis, discussed urology.——Dr. Rollin H. Moser, Indianapolis, addressed the Henry County Medical Society in Newcastle, October 15, on treatment of diseases of the stomach.——Dr. John C. Davis, Logansport, discussed complications in the second and third stages of labor before the Cass County Medical Society, October 15.——At a meeting of the Fayette-Franklin County Medical Society in Connersville, October 13, Dr. Clifford J. Straehley, Cincinnati, spoke on the treatment of heart disease.——Dr. Jacob Meyer, Chicago, addressed the Tippecanoe County Medical Society in Lafayette, October 13, on peptic ulcer.

IOWA

Rural Health Meetings.—The extension service of the Iowa State College of Agriculture and the state department of health will hold health meetings in fifty-three counties, beginning the week of November 7, for residents in rural areas. The program will include a get-together meeting in each quarter of the county from Monday through Thursday. On Friday and Saturday of the same week a county-wide conference of farm leaders will be held at the county seat, under the direction of the state department of health, to discuss what organized groups can do to improve and extend local health services.

Basic Science Certificate and Reciprocity.—The basic science act of Iowa authorizes the board of examiners in the basic sciences, in its discretion, to issue a certificate without examination to an applicant who has passed an examination in anatomy, physiology, chemistry, pathology, bacteriology and hygiene, given by a board of examiners in the basic sciences or by a licensing board in another jurisdiction, provided the examination passed by the applicant was as comprehensive and exhaustive as the examination required under the Iowa act. On October 13, the Iowa board promulgated a regulation that hereafter no applicant will be exempt from examination unless he has successfully passed an examination in the subjects named given by a "board of examiners in the basic sciences in another state with which reciprocity relations have been established." This ruling apparently makes it impossible for a physician licensed in a jurisdiction in which the basic science requirement is not in effect to obtain reciprocity with Iowa without passing the Iowa basic science examination.

KANSAS

Society News.—Dr. Erastus S. Edgerton discussed "Malignancies of the Colon" before the Sedgwick County Medical Society, Wichita, November 17, and Dr. Fred J. McEwen conducted a cardiac clinic. Drs. Wirt A. Warren and Joseph S. Reifsneider, Wichita, among others, addressed the society, November 3, on "Treatment of Chronic Arthritis" and "Safety Line in Acute Otitis Media."——The Pratt County Medical Society was addressed, October 23, by Dr. Willard J. Kiser, Wichita, on "Carcinoma of the Breast."——At a meeting of the Butler-Greenwood County Medical Society, October 16, Dr. George B. Morrison, Wichita, spoke on "Statistical Comparison and Practical Considerations of Transurethral Prostatic Resection."——Dr. Chester H. Warfield, Wichita, discussed "Bone Tumors and Allied Bone Lesions" before the Sumner County Medical Society, October 22.——Dr. Edgar A. Pickens, Wichita, read a paper on "Prostatic Resection" before the Meade-Seward County Medical Society, November 6.——Dr. Lee V. Hill, Kansas City, gave an anatomic demonstration on infections of the foot before the Wyandotte County Medical Society, November 3, and Dr. Fred E. Angle, Kansas City, discussed coronary disease.

MARYLAND

Child Health Conferences.—More than 2,800 children were examined during the fifteen weeks of the annual tour of the healthmobile of the state department of health. Nine counties in southern Maryland and the eastern shore were visited. Of the children examined 2,170 needed follow-up care, 1,224 had not been vaccinated, about 397 were underweight, 333 had unhealthy tonsils and eighty-one were "mouth breathers."

MASSACHUSETTS

New Society of Gastro-Enterology.—The Boston Society for the Advancement of Gastroenterology was organized at a meeting in the Harvard Club, September 24, to stimulate interest in the relation of gastro-enterology to the practice of general medicine and the various specialties and in the relation of other fields of medicine to gastro-enterology. Meetings will be held from October to May, and dues will be $5. The society is a local chapter of the National Society for the Advancement of Gastroenterology. Officers are Drs. Charles W. McClure, president; William R. Morrisson, vice president,

and Lester R. Whitaker, secretary-treasurer. The affairs of the society will be administered by an executive committee consisting of two elected members and the officers ex officiis. The elected members are Drs. Henry Baker and Louis F. Curran. A clinical meeting was held at the Boston City Hospital, November 10.

"Eye Specialist" Birnstein Pleads Guilty.—Samuel Birnstein, New Orleans, pleaded guilty in Middlesex Superior Court, East Cambridge, October 14, to a charge of conspiracy and larceny of $500. In the meantime, he has been turned over to other authorities in Massachusetts who wanted him for the same type of fraud. Birnstein was said to be one of three men traveling about the country representing themselves as "eye specialists." In this instance, his companions were said to be Ernest Mandell and Jack Shaw. The general procedure of "eye specialists" has been described at various times in THE JOURNAL. "Liquid radium" is dropped into the eye; the substance congeals and is then removed with the claim that it is a cataract. Birnstein was identified through a police picture and returned voluntarily after he was located in New Orleans; not, however, until he was threatened with extradition. A man involved in a similar swindle in 1934 gave the name S. Bernstein (THE JOURNAL, March 17, 1934, p. 849). He and another man giving the name E. J. Mandell or Mendell were arrested but were released for want of proof on condition they would return the $300 involved.

Society News.—Dr. Israel M. Rabinowitch, Montreal, Canada, addressed the Greater Boston Medical Society, November 10, on "Effects of Protamine-Zinc-Insulin and Other Mixtures of Zinc and Insulin in Diabetes Mellitus."——The health developments in Massachusetts under the social security program was the theme of the Massachusetts Conference of Social Work, November 7, in Boston; speakers were Drs. Henry D. Chadwick, state health commissioner; Mary Louise Diez, director, division of child hygiene of the state department of public welfare, and Edward G. Huber, assistant director, division of administration.——Among speakers before the New England Heart Association in Boston, November 9, were Drs. Ashton Graybiel on "The Effect of Inhalation of Tobacco Smoke on the Electrocardiogram," and Paul D. White, "The Growing Importance of Cardiac Neurosis."——Dr. Thomas B. Quigley, Boston, discussed "State Medicine in Sweden" at a meeting of the Essex South District Medical Society, November 4.——Samuel Eliot Morison, Litt.D., professor of history, Harvard University, presented high lights in Harvard medical history before the Harvard Medical Society, November 10.

MICHIGAN

Dr. Byington Accepts New Position.—Dr. Garner M. Byington, Battle Creek, for four years medical director of the W. K. Kellogg Foundation, has resigned to become director of medical relations in the Detroit Department of Health, newspapers report. In his new position Dr. Byington will carry out a child health program in Detroit similar to that sponsored by the foundation in rural districts. Dr. Byington is a graduate of Wayne University College of Medicine, Detroit.

Changes in Faculty at Wayne University.—Dr. Charles G. Johnston, Harriet M. Frazier fellow in research surgery, and instructor in surgery, University of Pennsylvania School of Medicine, Philadelphia, has been appointed professor and head of the department of surgery at Wayne University College of Medicine, according to an announcement. Dr. Warren O. Nelson, formerly research assistant in anatomy, Yale University School of Medicine, New Haven, Conn., has been named professor and head of the department of anatomy. Dr. Gordon B. Myers has been appointed professor and acting head of the department of medicine. Dr. Ward F. Seeley, professor of obstetrics and gynecology, has been made also acting head of the department, and Dr. Thomas B. Cooley has been named professor and head of the department of pediatrics. Dr. Seeley succeeds Dr. H. Wellington Yates, who becomes professor emeritus. The appointment of Dr. Hugo A. Freund as professor of clinical medicine was also announced.

MINNESOTA

One Year at Hard Labor.—Mels White, alias Mike Roller, alias Marion Roller, alias Marion Royle, pleaded guilty to a charge of practicing healing without a basic science certificate, October 8, at Rochester, and was sentenced by Judge Vernon Gates to one year at hard labor in the Olmsted County Jail. White, who claims to be a full blooded Osage Indian from Oklahoma, has spent most of the past ten years in the state prison on various charges.

Health at Minneapolis.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended October 31, indicate that the highest mortality rate (19.3) appears for Minneapolis and that the rate for the group of cities as a whole was 11.1. For the corresponding period last year the mortality rate for Minneapolis was 8.9 and for the group of cities, 10.9. The annual rate for eighty-six cities for the forty-four weeks of 1936 was 12.1 as against a rate of 11.3 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, for they fluctuate widely.

MISSOURI

Society News.—The St. Louis Medical Society was addressed, October 27, by Drs. Lex G. McCutchen on "Comparative Values of Radium and Contact X-Ray Therapy in the Treatment of New Growths"; Thomas P. Findley Jr., "Observations on the Mechanism of Urine Formation," and John W. Thompson, "Results in the Surgical Treatment of Carcinoma of the Gastro-Intestinal Tract."——The Boone County Medical Society was addressed in Columbia, October 6, by Drs. William T. Coughlin and James L. Mudd, St. Louis, on "Malignancies That Involve the Mouth and Jaws" and "Chronic Lung Suppuration" respectively.——Dr. Gervais D. Smith, Bolivar, among others, addressed the Dallas-Hickory-Polk County Medical Society, October 6, on "Recognition and Treatment of Menopausal Disturbances."——Dr. George Kirby Sims, Bolivar, read a paper entitled "Forceps: Their Uses, Abuses, Indications and Contraindications" before the Jasper County Medical Society, October 27.——"Common Diseases of the Skin and Their Treatment" was discussed before the Perry County Medical Society, October 1, by Dr. Norman Tobias, St. Louis.

NEBRASKA

New Division of Maternal Health.—Dr. John Warren Bell, Olean, N. Y., has been appointed director of a new division of maternal and child health in the state department of health set up under the social security plan. The committee on maternal health of the Nebraska State Medical Association met with Dr. Bell September 18 to establish a basis of coordination with the new division. Basic material now being gathered and analyzed on a regional basis will be presented to the committee and to the councilor districts.

District Meetings.—The Seventh Councilor District Medical Society held its annual meeting at Friend October 22. The speakers were the following physicians of Lincoln: Drs. Charles H. Arnold, "Management of Complicating Factors in Hyperthyroidism"; Harry E. Flansburg, "Atypical Hyperthyroidism"; Floyd L. Rogers, "Diagnosis and Treatment of Hyperthyroidism" and Sidney O. Reese Jr., "Clinical Problems Associated with Malignancy of Thyroid," and Drs. Albert F. Tyler and Francis L. Simonds, Omaha, "Treatment of Malignancies," a film in color.——The Ninth and Tenth Councilor District Medical Societies held a joint meeting at Kearney, October 15. The speakers were Drs. Charles R. Spicer, Hastings, on "Insulin in Infant Feeding"; Abram E. Bennett, Omaha, "Results Obtained in Neuropsychiatric Disorders with Artificial Fever"; Lee W. Rork, Hastings, "Observations in Early Pulmonary Tuberculosis," and Albert F. Tyler, Omaha, "Treatment of Accessible Malignancies of the Head, Face and Neck."

NEW JERSEY

State Tuberculosis Meeting.—The thirtieth annual meeting of the New Jersey Tuberculosis League was held in Newark, October 22-23. Among the speakers was Dr. James Alexander Miller, New York, on "Vignettes from Tuberculosis History." Dr. Charles I. Silk, Perth Amboy, was elected president of the league.

Society News.—Dr. George W. Crile, Cleveland, addressed the New Jersey Gastro-Enterological Society, October 5, on "Pathologic Physiology of the Sympathetic System with Special Relation to Peptic Ulcer and Spastic Colitis."——Dr. Sigmund S. Greenbaum, Philadelphia, addressed the Newark Dental Club, October 1, on "Oral Medicine with Special Reference to Diagnosis."——Dr. John A. O'Regan, New York, addressed the Bergen County Medical Society, October 13, on obstetrics. A round table discussion of maternal welfare in New Jersey was presented by Drs. Spencer T. Snedecor, Hackensack, William K. Pudney, Montclair, Henry d'Agostin, Cliffside Park, and Lyman Burnham, Englewood.

NEW YORK

Graduate Lectures. — A graduate course of lectures was presented in Wayne and Cayuga counties beginning September 24 and continuing on Thursdays through October. Dr. Russell L. Cecil, New York, gave the first, speaking on pneumonia; subsequent speakers, all of New York, were Drs. Ralph G. Stillman, on "Significance of Laboratory Tests and Methods"; Edward M. Livingston, "General Aspects of Abdominal Surgical Diagnosis"; William Goldring, "Physiology of Kidney Diseases," and Robert T. Frank, "Practical Endocrinology."

New York City

Second Harvey Lecture.—Dr. Eugene M. Landis, Philadelphia, will give the second Harvey Society Lecture of the season at the New York Academy of Medicine, November 19, on "The Passage of Fluid Through the Capillary Wall."

Brickner Lecture. — Dr. George R. Minot, professor of medicine, Harvard University Medical School, Boston, will deliver the sixth Walter M. Brickner Lecture at the Hospital for Joint Diseases, November 19, on "Anemia: Etiology, Diagnosis and Treatment."

Personal.—The advisory council of the department of hospitals is sponsoring a dinner in honor of Dr. Mark L. Fleming, who recently retired as general medical superintendent of the department. The dinner will be at the Waldorf-Astoria, Wednesday evening, November 18.

Diabetes Meeting.—Insulin protaminate was the subject of discussion at a clinical meeting of the New York Diabetes Association, November 13, at the New York Academy of Medicine. The speakers were Drs. Henry Rawle Geyelin and Herman O. Mosenthal, New York, and Howard F. Root, Boston.

Public Health Training for Medical Students.—Students at Long Island College of Medicine are to be trained in public health administration in cooperation with the Red Hook-Gowanus health center now under construction by the department of health, it was announced October 1. The plan calls for student participation in the actual work of the health center, with lectures, laboratory practice and field trips. It is expected that the center will be completed about May 1937.

Sentenced for Insurance Fraud.—Dr. Rubin Klein, 92 Humboldt Street, Brooklyn, was sentenced to two months in city prison, October 19, on a plea of guilty to conspiracy in a fraudulent accident insurance claim, the New York *Times* reported October 20. It was said that Klein signed a report to an insurance company that he attended a man for injuries received in an automobile accident when the injuries had actually occurred previously and the man had already received an award of $2,000 from another company. According to the newspaper report, the man admitted the conspiracy but denied receiving the money. This case was one of several revealed by an investigation of accident frauds perpetrated on insurance companies by a so-called "Hurwitz gang," of which one Jacob Hurwitz, an insurance broker, was said to be the leader. The case was prosecuted by Assistant District Attorney Bernard Botein, in charge of a new accident fraud bureau.

OHIO

Personal.—Dr. Abram L. Van Horn, chief of the bureau of child hygiene of the state department of health since 1934, has been appointed a regional consultant for the Children's Bureau, U. S. Department of Labor, effective November 15. Dr. Van Horn will supervise the maternal and child health program of the bureau in Maryland, Delaware, District of Columbia, Virginia, North and South Carolina, Georgia and Florida.

District Meeting.—The fall meeting of the Eighth Councilor District, Ohio State Medical Association, was held in Athens, November 12. The speakers were Drs. Clyde L. Cummer, Cleveland, on "Syphilis the Great Masquerader"; Louis J. Karnosh, Cleveland, "Psychoses Associated with Disturbances of the Endocrine System," and Leslie L. Bigelow, Columbus, "High Lights in Medicine." The motion picture "Treatment of Breech Presentation," produced by Dr. Joseph B. De Lee, Chicago, was shown.

Society News.—Dr. Emil Novak, Baltimore, will address the Academy of Medicine of Cleveland, November 20, on "Endocrinology and Organotherapy in Gynecology."——At a meeting of the Wayne County Medical Society in Wooster, October 23, the speakers were three Orrville physicians: Drs. Otto P. Ulrich, on "Care of Accident Cases"; Orrin C. McDowell, "Treatment of Hemorrhoids," and George H. Irvin, "Obstetric Anesthesia." —— Dr. Harry G. Armstrong, U. S. Army, Wright Field, Dayton, addressed the Montgomery County Medical Society, Dayton, November 20, on "Physiologic Effects of Flying."——Dr. Soma Weiss, Boston, addressed the Academy of Medicine of Cincinnati and the Heart Council of Greater Cincinnati at a joint meeting November 10, on "The Relation of the Cardiovascular System to the Nervous System." Dr. Isidor C. Rubin, New York, will address the academy November 17 on "Tubal Insufflation and Sterility: Diagnostic and Therapeutic Aspects."——Dr. James G. Carr, Chicago, addressed the Stark County Medical Society, Canton, November 12, on diseases of the heart. Drs. Howard A. Power, Charles E. Ziegler and David B. Martinez, all of Pittsburgh, presented a symposium on obstetrics before the society October 15.

OREGON

Annual Registration Due December 1.—All practitioners of medicine and surgery holding licenses to practice in Oregon are required by law to register annually on or before December 1 with the secretary of the Board of Medical Examiners and at that time to pay a fee of $5. A practitioner failing to register is subject to a penalty of $1 for each thirty days or part thereof of default, and his failure to reregister within ninety days after December 1 is a misdemeanor.

PENNSYLVANIA

Society News.—At a meeting of the Fayette County Medical Society in Uniontown, November 5, the speakers were Drs. James K. Everhart, Pittsburgh, William W. Briant Jr., Mount Lebanon, and Ellsmer L. Piper, Pittsburgh. This was the second pediatric institute of the series of three being presented throughout the state under the auspices of the state department of health and the Medical Society of the State of Pennsylvania.——Drs. Louis H. Clerf and Charles E. G. Shannon, Philadelphia, addressed the Western Pennsylvania Eye, Ear, Nose and Throat Society, Indiana, October 15, on "Differential Diagnosis of Diseases of the Larynx and Practical Points in Their Treatment" and "The Relationship Between Paranasal Disease and Retrobulbar Neuritis" respectively.

Philadelphia

Illegal Practitioner Jailed.—The state board of medical education and licensure recently investigated the "Medical Research Laboratories," Thirteenth and Market streets. One Adolph Quesada pleaded guilty to practicing medicine without a license, received a suspended sentence and was fined $100 and costs. Being unable to pay the fine and costs, he was placed in jail.

Personal.—Dr. George M. Dorrance, professor of maxillofacial surgery, Thomas Evans Institute, University of Pennsylvania, and surgeon at the American Oncologic Hospital, received the medal of achievement awarded by the Poor Richard Club, an advertising club, of Philadelphia, October 6. ——Dr. Brooke M. Anspach received the honorary degree of doctor of science at the Founders' Day exercises at Lafayette College, Easton, October 16.

In Memory of Dr. Anders.—The Philadelphia County Medical Society will devote its meeting of November 25 to the observance of the annual Pennsylvania Health Day and a memorial to Dr. James M. Anders, who was a leader in the movement to establish the public health day. Dr. Roderick Heffron, Boston, will speak on "The Control of Pneumonia" and Dr. George E. Pfahler will pay tribute to Dr. Anders. Dr. Baldwin L. Keyes will present the report of the society's noise abatement committee, whose work was almost the last activity sponsored by Dr. Anders before his death August 29.

Annual Dinner of Ex-Residents. — The Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital will hold its fiftieth annual meeting and dinner December 1. Clinics will be given in the auditorium of the hospital in the afternoon by Drs. Edward A. Schumann, Emily P. Bacon, Ross V. Patterson and Russell S. Boles. The dinner will be at the Art Club, with Major Gen. Charles R. Reynolds, surgeon general of the U. S. Army, presiding. General Reynolds is president of the association. Guests will be Dr. George E. Pfahler; Hon. S. Davis Wilson, mayor of Philadelphia; Dr. William C. Hunsicker, director of public health of the city; Dr. William G. Turnbull, superintendent of the Philadelphia General Hospital, and Dr. John G. Meharg, president of the Blockley Medical Society. Ex-residents who have not received announcements are asked to send their names to Dr. George Wilson, secretary of the association, 133 South Thirty-Sixth Street.

SOUTH CAROLINA

Personal.—Dr. Oscar D. Garvin Jr., Ridge Springs, has been appointed health director of the district including the counties McCormick, Edgefield and Saluda.——Dr. James A. Stumbo, Charleston, has been appointed health officer of a new health unit in Union County.

The Founders Day Lecture.—Dr. Reginald Fitz, professor of medicine, Boston University School of Medicine, Boston, delivered the Founders Day Lecture at the annual observance of the day at the Medical College of the State of South Carolina, November 5. Clinics were conducted at Roper Hospital in the morning by Drs. Roger G. Doughty, Columbia; George R. Wilkinson, Greenville; Joseph I. Waring, Archibald J. Buist, William A. Smith and F. Adelbert Hoshall, Charleston. In the afternoon Dr. Fitz conducted a medical clinic.

SOUTH DAKOTA

Personal.—Dr. Norris T. Owen, Rapid City, was recently named president of the South Dakota State Board of Health. Dr. Carl A. Feige, Canova, is vice president and Dr. Burt A. Dyar, De Smet, director of medical licensure. Dr. Park B. Jenkins is secretary.

VIRGINIA

Portrait of Dr. Horsley.—The Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, at its annual meeting October 6 presented to the hospital a portrait of Dr. John Shelton Horsley. Dr. Roy W. Upchurch, Danville, president of the association, made the presentation address, and the portrait was unveiled by John Shelton Horsley III. It was accepted by Dr. William H. Higgins, Richmond. Drs. John M. T. Finney, Baltimore, and Stuart McGuire, Richmond, were guest speakers at the ceremony. Dr. Horsley and his staff conducted clinics at the hospital in the morning.

Specialty Society Elections.—Dr. Roger H. DuBose, Roanoke, was elected president of the Virginia Pediatric Society at its annual meeting during the convention of the Medical Society of Virginia in Staunton in October; Dr. W. Ambrose McGee, Richmond, was reelected secretary. Dr. Austin I. Dodson, Richmond, was elected president, and Dr. Linwood D. Keyser, Roanoke, secretary of the Virginia Urological Association, which met at the same time. The Virginia Orthopedic Society elected Drs. John Blair Fitts, Richmond, and Bernard H. Kyle, Lynchburg, president and secretary respectively. At the meeting of the Virginia Society of Obstetricians and Gynecologists Dr. Marvin Pierce Rucker, Richmond, was elected president and Dr. Eugene S. Groseclose, Lynchburg, secretary.

WEST VIRGINIA

Dr. Schwinn Honored.—A bronze bust of Dr. Jacob Schwinn was recently unveiled at the Ohio Valley General Hospital, Wheeling, as a tribute from the Jacob Schwinn Study Club. Dr. Schwinn, a native of Switzerland, came to the United States at the age of 25, and has practiced more than fifty years in Wheeling. He has for many years been a member of the staff of the Ohio Valley General Hospital and has served as president of the Ohio County Medical Society and the West Virginia State Medical Association. He is 81 years old.

Society News.—Dr. Albert H. Hoge, Bluefield, addressed the Fayette County Medical Society at Oak Hill, October 6, on "Gastro-Intestinal Allergy." The Kanawha and Raleigh county medical societies were guests.——Dr. Leopold Clarence Cohn, Baltimore, addressed a joint meeting of the Harrison, Marion and Monongalia county medical societies in Clarksburg, October 1, on diagnosis and treatment of cancer.——Drs. Abraham Seletz and Howard A. Swart, Charleston, addressed the Kanawha Medical Society, October 13, on "Relationship of Nasal Accessory Sinus Infections to Certain Obscure Chest Involvements" and "Internal Derangements of the Knee Joints" respectively.——Dr. Isaac A. Bigger, Richmond, Va., addressed the Ohio County Medical Society, Wheeling, October 9, on "Surgery of the Heart and Pericardium."

WISCONSIN

Personal.—Dr. William E. Grove, associate clinical professor of laryngology, rhinology and otology, Marquette University School of Medicine, Milwaukee, has been appointed to succeed Dr. Charles J. Coffey, clinical professor and director of the division of laryngology, rhinology and otology, who has retired after thirty-six years of teaching at Marquette to devote his time to private practice. Dr. Coffey was honored at a testimonial dinner at the Hotel Schroeder, October 22. Dr. Francis D. Murphy, head of the department of medicine at Marquette, was chairman and speakers were the Rev. William M. Magee, president of the university; Rev. Anthony Berens, regent, and Dr. Eben J. Carey, dean.——Dr. Ralph M. Waters, Madison, addressed the section of anesthetics of the Royal Society of Medicine of London, October 2, on carbon dioxide absorption from anesthetic atmospheres.

GENERAL

Campaign Against Cancer.—The national enlistment campaign of the Women's Field Army in the cancer control movement will be held March 21-27, 1937, the fee to be $1. In the distribution of funds, 70 per cent will be given to the states for their activities, 20 per cent to the central office in New York City for expenses and 10 per cent to a contingent fund. All funds will be allocated from the central office.

Medical Section of Accident Boards.—At the recent annual meeting of the International Association of Industrial Accident Boards and Commissions in Topeka, Kan., a resolution was adopted by the medical section urging the continuance of separate medical programs in subsequent years. The resolution has been accepted by the association's executive committee. The 1936 session of the association was the first in which a medical section convened.

Rocky Mountain Medical Conference.—The first Rocky Mountain Medical Conference will be held in Denver, July 19-21, 1937. The conference is to be a joint meeting of the Colorado State Medical Society, the New Mexico State Medical Society, the Utah State Medical Association and the Wyoming State Medical Society and will be open to members of the recognized societies of adjoining states. According to the present plan, the conference will be held every three years with a different state acting as host.

Railway Associations Elect Officers.—Dr. William J. Connelly, Carnegie, Pa., was elected president of the Association of Surgeons of the Pennsylvania Railroad at its convention in Philadelphia in October. Dr. Frank P. McCarthy, Erie, Pa., was made vice president.——Dr. Wade H. St. Clair, Bluefield, W. Va., was elected president of the Association of Physicians and Surgeons of the Norfolk and Western Railway, at the annual meeting in New York, October 7-8.

Plans for Congress on Gastro-Enterology.—The United States National Committee of the International Society of Gastroenterology has been formed by representatives of the various gastro-enterologic organizations in this country, it is announced. Those who are interested in joining are invited to apply to the president, Dr. Anthony Bassler, 121 East Seventy-First Street, New York. The second International Congress on Gastroenterology will be held in Paris, Sept. 13-15, 1937.

Changes in Status of Licensure.—The Pennsylvania State Board of Medical Education and Licensure recently reported the following actions, dated August 28:

Dr. Eugene Hamborszky, Millersville, license restored. It was revoked Oct. 18, 1934.

Dr. David A. Rupert, Donoroa, license suspended because of conviction of narcotic addiction.

The New Jersey State Board of Medical Examiners has reported the following:

Dr. Francesco Verdiglione, Camden, license revoked automatically through his failure to present evidence of having become a citizen of the United States within six years after declaring his intention to do so.

Dr. John J. Kashkevich, Newark, license restored; it was revoked in 1923.

Meeting of Radiologists.—The twenty-second annual meeting of the Radiological Society of North America will be held at the Hotel Netherland Plaza, Cincinnati, November 30-December 4. The preliminary program lists the following speakers, among others:

Drs. Henry Snure and George D. Maner, Los Angeles, Roentgen-Ray Evidence of Metastatic Malignancy in Bone.

Dr. Hugh F. Hare, Boston, Cancer of the Thyroid in Children.

Drs. Wendell G. Scott and Sherwood Moore, St. Louis, Roentgen Kymographic Studies in Clinical Cardiac Conditions.

Dr. Louis H. Clerf, Philadelphia, Carcinoma of the Bronchus.

Drs. Richard Manges Smith and Austin T. Smith, Philadelphia, Osteopetrosis.

Dr. Carleton B. Peirce, Ann Arbor, Mich., Pulmonary Pneumocele: Certain Considerations in Cystic Disease of the Lung.

Drs. Eugene T. Leddy and Walter C. Popp, Rochester, Minn., Use of Pentobarbital Sodium (Nembutal) for Roentgen Sickness: Report of 175 Cases.

Several symposiums have been planned: diseases of the stomach and gallbladder, the female pelvis, therapy, gastroscopy, the chest and physics. Clinics will be held every afternoon except Thursday.

Society of Tropical Medicine.—The American Society of Tropical Medicine will hold its annual convention at the Fifth Regiment Armory, Baltimore, November 18-20. The presidential address will be delivered by Dr. Henry E. Meleney, Nashville, on "The Problem of Malaria Mortality in the United States," and the first Charles Franklin Craig Lecture on Tropical Medicine will be presented by Dr. Ernest Muir, general and medical secretary, British Empire Leprosy Relief Association, London, England, on "The Control of Leprosy." The speakers on the program will include:

Dr. Wilbur A. Sawyer, Director, International Health Board, Rockefeller Foundation, A History of the Activities of the Rockefeller Foundation in the Investigation and Control of Yellow Fever.
Carl M. Johnson, Sc.D., Panama, and Raymond A. Kelser, Ph.D., Ancon, C. Z., Incidence of Chagas' Disease in Panama as Determined by the Complement-Fixation Test.
Dr. Ellis H. Hudson, Deir-ez-Zor, Syria, The Significance of Bejel.
Dr. Thomas B. Turner, International Health Board, New York, Studies on the Relationship Between Yaws and Syphilis.

At the luncheon of the society, November 19, Walter Reed medals will be presented to Mrs. Walter Reed and to the Rockefeller Foundation, the latter for meritorious achievement in the study and control of yellow fever.

Society News.—Dr. Elliott P. Joslin, Boston, was chosen president of the Interstate Post-Graduate Medical Association at the annual meeting in St. Paul, October 12-16.——Dr. Paul Titus, Pittsburgh, was chosen president-elect of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at the annual meeting in Bretton Woods, N. H., September 14-16, and Dr. James W. Kennedy, Philadelphia, was installed as president. Dr. Willard R. Cooke, Galveston, Texas, was elected vice president and Dr. James R. Bloss, Huntington, W. Va., reelected secretary. The 1937 meeting will be at The Homestead, Hot Springs, Va.——Dr. Arthur T. McCormack, Louisville, Ky., was chosen president-elect of the American Public Health Association at the annual meeting in New Orleans in October and Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, Washington, D. C., was installed as president. Vice presidents elected were Drs. Angel de La Garza Brito, Mexico City, and Robert E. Wodehouse, Ottawa, Canada.—— Drs. Andrew L. Glaze, Birmingham, Ala., and Herbert S. Alden, Atlanta, Ga., were elected president and secretary respectively of the Southeastern Dermatological Association at its meeting in Atlanta, September 6.——Dr. Byrl R. Kirklin, Rochester, Minn., was chosen president-elect of the American Roentgen Ray Society at the annual meeting in Cleveland, and Dr. Charles A. Waters, Baltimore, was installed as president. Dr. Eugene P. Pendergrass, Philadelphia, was reelected secretary. The 1937 session will be held in Chicago, September 13-17.

FOREIGN

Society News.—Dr. Henry G. Bugbee, New York, was elected president of the International Urological Association at its recent meeting in Vienna. The next meeting will be in New York in 1939.——The International Congress of Ophthalmology will be held in Cairo, Egypt, Dec. 8-14, 1937. The official subjects for discussion will be "Arterial Hypertension of the Retina" and "Endocrinology and the Eye." Correspondence should be addressed to the secretary general, Dr. M. Tewfic, Postoffice Box 2001, Cairo.

The Jerusalem Medical Center.—Ground was broken on Mount Scopus, overlooking the city of Jerusalem, October 20, for a medical center to be erected under the auspices of Hadassah, the women's Zionist organization of America, and the Hebrew University in Jerusalem (THE JOURNAL, May 16, p. 1744). Funds for the medical center, which is to consist of a hospital, a graduate medical school and a school for nurses, have been raised principally by Hadassah and the American Jewish Physicians' Committee.

Government Services

Centennial Celebration of Army Library

The one hundredth anniversary of the founding of the Army Medical Library will be observed with ceremonies at the library, November 16. The principal address will be delivered by Sir Humphry D. Rolleston, Haslemere, Surrey, England, formerly regius professor of physic at the University of Cambridge, former president of the Royal Society of Medicine and the Royal College of Physicians, and physician extraordinary to the king. Other speakers will include Col. Harold W. Jones, librarian, and Surg. Gen. Charles R. Reynolds. Visitors will inspect the library; its operation will be described by the staff, and rare books and manuscripts will be on display.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 3, 1936.

The Decline of Population

The fall of the birth rate is a phenomenon, in varying degree, of all western Europe and North America. It is at last beginning to receive some attention in this country. Statisticians, such as Professor Carr-Saunders, D. V. Glass and R. Kuczynski, have written on the subject. In a lengthy editorial, the *Times* points out that between 1821 and 1921 the population of England and Wales was trebled, and that from 26 million in 1850 the white population of North America rose to 137 million in 1933. Now everywhere, in the new countries as well as the old, the trend is turning. The great increase of the British population during the last century was due chiefly to a fall in the death rate, not to a rise in the birth rate. The persistent decline in that death rate is still concealing the imminent decline of population. In England and Wales the mean expectation of life in the middle of the last century was about 39 years; now it is 59 years. At the most fertile period, between 1851 and 1860, the natural increase of our population was 15.1 per cent a year; now it is 3 or 4 per cent. It has been proved statistically that our present birth rate is not sufficient to maintain the population. Professor Carr-Saunders in his recent book "World Population" has warned us that there is evidence that the numbers of the British race will certainly fall, perhaps catastrophically, during the next fifty years.

Kuczynski has introduced a new and most important unit for the study of population, called "the net reproduction rate." This may be defined as the average number of females that will be born to each new-born girl according to fertility and death rates of the women living in a particular year. If this rate is unity, the female population is being exactly replaced and the population will remain stationary. If the rate is above unity, the population will increase; if below it, the population will decrease. In only three countries of Europe—Bulgaria, Russia and Italy—is the rate above unity. In England and Wales the rate (1933) was 0.734, in France 0.82, in Germany (1930) 0.70, in Italy 1.18.

Estimates have been made of future populations. Assuming that the British birth rate declines at the same rate as during the period 1924-1931 and that mortality continues to fall, Dr. Leybourn calculates that our population forty years hence will be 32,700,000, a decline of 12,000,000. Another estimate, with different assumptions puts our future population at 38,500,000 in 1975 and 20,000,000 a hundred years hence. For other countries similar estimates have been made. France has been given 29,000,000 for 1980, Germany 50,000,000 for 1975 (this estimate was made in 1930). There may be differences as to the exact figures, but there is none as to the tendency they reveal. Some qualification must be made as to what are called "the totalistic countries," which might be defined as those which have totally abolished the liberty of the individual. For military reasons, in spite of their poverty, Russia, Germany and Italy are all endeavoring to increase population by monetary inducements. In Germany the birth rate fell from 39 per thousand in 1876 to 15 in 1932 and the net reproduction rate to 0.75, which is about the same as in England. Statisticians prophesied a decline of population of over 20,000,000 by the year 2000 and all agreed that after 1960 a decline would begin. Alarmed at this prospect, the government passed an act in 1933 to provide loans for young couples wishing to marry, a fourth of which would be canceled on the birth of each child. It is too soon to judge of the success of this scheme or of a similar one in

Italy. But marriages have increased in Germany from 509,591 in 1932 to 701,431 in 1934; births in the same period by 181,772. However, there was also an increase in classes not benefiting by these grants, and therefore how far the increase is due to economic recovery remains a question. The government also took drastic measures to check the practice of abortion. In his book "The Struggle for Population" Mr. V. D. Glass calculates that if the rise of the German birth rate is maintained the present population will be replaced but with a smaller proportion of potentially fertile women. Thus decline has been postponed, not averted. In Italy Mr. Glass can find no "significant positive result of the attempt to encourage marriage." Although the birth rate has hardly responded to official encouragement, infant mortality has shown a remarkable decline. The two dictatorships, with all their resources of power and propaganda, have not been able to destroy the menace of depopulation. In France and Belgium propaganda and family allowances have been tried. But an inquiry made for the Eugenics Society (of England) revealed little to show any result. In neither of these countries has there been such a sharp decline in the birth rate as in England, where it has fallen from 22 to less than 14 per thousand in twelve years. It is reckoned that a man needs an addition of 120 per cent to his income to maintain an infant and four children. The highest allowances on the continent cover little more than half the cost of raising three children.

What causes have brought about the position in England, where the birth rate is now only two thirds of that necessary for replacement and in the professional classes only one half? The *Times* suggests that modern housing, modern ways of spending leisure, social and educational ambitions for children, the concentration of population in towns, educational and economic opportunities opened to women, and the tendency to put the comfort and independence of the individual before the interests of the community play their part and have more to do with the decline than economic considerations. But it might be objected that some of these causes are of an economic nature. The *Times* adds that most influential of all in the opinion of many authorities is the widespread knowledge of contraceptive measures. It asks Can we hope to hold a large proportion of the thinly populated parts of the earth when our stock is dwindling? It does not suggest a remedy but says that the first step toward action is an easy one: publicity for the problem and full and authoritative investigation.

Atmospheric Pollution by Smoke

An interesting smoke abatement exhibition, organized by the National Smoke Abatement Society in conjunction with certain government departments, was opened at the Science Museum, South Kensington, by the minister of health. The president of the society, Dr. H. A. Des Voeux, recalled the fact that the society was founded thirty-six years ago, when London used to have from thirty-five to forty thick fogs every winter, some of them lasting a week. If the conditions continued, London would have become uninhabitable. The minister of health, Sir Kingsley Wood, said that smoke was an insidious enemy and cost the nation many millions a year. In Elizabeth's reign proclamations were issued forbidding the use of coal in London while parliament was sitting. Conditions were better now than at the end of the last century, in spite of the fact that over four million houses had been built since 1901. The increased use of gas and electricity had helped this improvement. But there was little reason for complacency today and much had still to be done. He thought that in the future legislation would be less important than prudent administration and cooperation between public authorities, manufacturers and voluntary organizations. Domestic smoke was now the largest part of the problem.

The exhibition is designed to illustrate three things—the nature and effects of smoke, the methods of measuring air pollution and how the nuisance can be abated. A fine series of photographs show the great smoke pall over London and the blackened clouds over Epping Forest after a London fog, as well as views of Edinburgh, Manchester and other cities. There are photographs as well as specimens of stonework and bricks damaged by smoke. To demonstrate the effects on human life there are specimens of contaminated and uncontaminated lungs and a diagram showing that, while there were 137 deaths from respiratory diseases in Manchester in December 1930, a month without a fog, there were 592 in January 1931, when there were nine days of fog. An effective display came from Kew (the botanic gardens just outside London). A branch of evergreen as picked showed a great contrast from one that had been washed. There is a diagram showing how a Londoner, if he lives at Kew, loses every year ninety-nine hours of sunshine through smoke, 233 hours if he lives at Westminster and 340 if he lives in the city. There is a poster of a pair of scales, which teaches that the average English family every year creates more than its own weight of smoke.

PARIS

(From Our Regular Correspondent)

Oct. 12, 1936.

French Surgical Congress of 1936

The forty-fifth annual meeting of the French Surgical Association was held during the week beginning October 5 at Paris. Owing to the inability of Prof. Victor Pauchet, who had been elected president last year, to be present, the surgeon general of the army, General Rouvillois, acted as president.

It is the custom at all the important French congresses to appoint two members to review a subject chosen by vote and to submit the report at the next meeting. The subjects for this year's congress were (1) the results of ovarian grafts, (2) surgery in diabetes and (3) pneumonectomy.

RESULTS OF OVARIAN GRAFTS

The reporters for the subject "Results of Ovarian Grafts" were Dr. Mocquot of Paris and Dr. Cotte of Lyons. Their monograph is an exhaustive critical review and worthy of study in the original by all those interested in the subject. Dr. Mocquot's paper took up the results of experimental work on animals, which must form the basis of clinical observations. He reported the methods of grafting, autoplasty, homoplasty and heteroplasty, as follows:

A. Autoplastic grafts: In earlier experiments the transplantation of ovaries was especially studied from the point of view of the reestablishment of the faculty of procreation, but this is less important than the question of the power of the graft to furnish internal secretions. In order to leave a portion of the surface of the graft free, it was placed on the surface of the parietal peritoneum, mesentery or omentum. When this idea was discarded, the graft was placed in cellular tissue, muscles, viscera or isolated segments of veins. Transplantations into the anterior chamber of the eye have yielded valuable information on the growth of the follicles and formation of the corpus luteum. A graft composed of the entire ovary offers resistance to the penetration of blood vessels, whereas minute fragments offer little resistance to absorption by the tissues. The best results were obtained by Pettinaria in transplanting a bisected ovary. Successful grafting is favored by the hormone effects of other endocrine organs, especially the hypophysis. When there is a lack of ovarian secretion in the organism, a functional stimulation of endocrine secretions results which favors development of the graft. Too long an interval must not elapse (not more than from five to six months in guinea-pigs) between the castration and grafting, otherwise the organism adapts itself to a newly established endocrine equilibrium with resultant suppression of the functional stimulation needed for growth of the graft. The more highly developed

elements, i. e., the follicles and corpora lutea, are the first to die if the graft is unsuccessful. Ovaries of younger are far more resistant when transplanted than are those of older animals. Even when the graft survives, the question arises whether one is not dealing with a tissue culture in a living medium.

B. Homoplastic grafts: Numerous experiments have shown that an ovary transplanted into an animal of the same species conserves its vitality with the formation of follicles, development and expulsion of ova. All the manifestations of the genital cycle reappear; even fecundation and gestation can follow. Homoplastic grafts, however, are less apt to be successful than the autoplastic variety. The best results for homoplasty are obtained in animals of the same age. When the transplantation is done on castrated animals the genitalia of which show a retarded development as a result, the uterus, tubes and vagina resume their interrupted evolution and the genital cycle is reestablished.

C. Heteroplastic grafts: Transplantation experiments between different races of mice, guinea-pigs, rabbits, cats and dogs have been attempted. In but few cases did the grafts survive. When this did occur there was great skepticism regarding the interpretation of the histologic picture. As a rule, heteroplastic grafts die, the changes being those of either a sclerotic or an inflammatory type.

Dr. Cotte of Lyons discussed the clinical application of ovarian grafts. His conclusions, from a study of the literature and his own results, were as follows:

1. Ovarian autografts: There are two principal indications. (*a*) In the treatment of sterility of ovarian origin. The occluded tubes present lesions that will not be improved by conservative operations, and only a salpingectomy is indicated. Instead of trying only to save the uterus and one ovary, it seems indicated, if the patient so wishes, to try to conserve the power of conception by transplanting the ovary into the uterus. He reported 200 cases in which this had been done, with twenty-one subsequent pregnancies, of which about 30 per cent terminated in miscarriage during the third or fourth month. From the point of view of technic, one should not attempt a free graft but rather implant the ovary with its pedicle attached in the uterine cavity.

(*b*) In the prophylactic treatment of disturbances after castration. If one admits that castration is always followed by more or less important disturbances and that the transplantation (autografts) of fragments of the ovary suffices to prevent such disturbances, this indication would hardly merit further discussion; but surgeons are far from being in agreement on this question. Hence it is difficult to formulate conclusions that will be generally accepted. As to the therapeutic value of the grafts, the good results are not as constant as has been claimed. On the other hand, it is true that in a certain number of cases the graft has sufficed to prevent the disturbances following castration. Cotte's observations include ninety-two cases in which the ovary was transplanted into the omentum and the uterus conserved. Of seventy-four end results, menstruation was reestablished in sixty-five (88 per cent). The ovarian function is resumed at the end of three months, a little later (seven months) in cases of acute salpingitis. Ovarian autografting hence is indicated in cases in which opotherapy is of no avail. Every effort should be made to perform conservative gynecologic operations. The surgeon ought not to perform total or subtotal hysterectomy with the idea in mind that transplanting the ovary into the labium majus will suffice to prevent the disturbances following castration. If the uterus can be conserved there is a prospect that an ovarian autograft will prevent such sequelae. Cotte believes the uterus should be conserved far more frequently than is at present the case. If this is not done, one will find few indications for ovarian autografts.

2. Ovarian homografts: The results obtained at the present time with ovarian and anterior hypophysis hormones have greatly lessened the indications of ovarian autografts, especially since their biologic value is far from being proved.

3. Ovarian heterografts: Their utilization in revitalizing the organism has shown that the effect is only transitory, even with pluriglandular grafts.

In the discussion, Dziembowski of Poland said that the majority of gynecologists in his country felt that the effects of ovarian grafts were only transitory and that they were either absorbed or became sclerotic in a few months; hence opotherapy continues to be the treatment of choice, following castration.

Douay of Paris reported 167 ovarian grafts observed from 1928 to 1934, of which 128 have been followed to the present time. This permits one to evaluate the end results. There were 11 per cent complete failures and 72 per cent permanent good results. The average duration (53 per cent of the cases) of ovarian activity following grafting is two years. In all his patients, autografts were employed. If the ovary is normal, it is advisable to leave it in situ. If it is diseased, it is necessary to remove a portion that can be used for grafts, contrary to current opinion. The patient need not be young. One is as apt to be successful in women just prior to the menopause. Douay believes that his method, placing the graft in the labium majus, will give the best results.

Senechal of Paris maintained that there are very few cases in which it is impossible to conserve a small portion of the ovary, sufficient to prevent the disturbances of the artificial menopause.

SURGERY IN DIABETES

The first paper on the second subject was by Fredet of Paris on general aspects, and the second by Jeanneney of Bordeaux on surgical disorders in diabetic patients. Fredet first took up cases presenting only a hyperglycemia and not requiring immediate operation. The objective in the first subgroup (hyperglycemia only) should be to reduce the high blood sugar content to the normal figure. This is comparatively easy if the hyperglycemia is of alimentary origin; i. e., a diet too rich in carbohydrates. Often it is necessary to employ insulin in addition to diet. One must begin with small doses to avoid a hypoglycemia and continue until the day of operation. In the second clinical subgroup, cases are encountered in which there is both a hyperglycemia and a glycosuria. Here the same treatment, diet and insulin, is indicated as in the patients with hyperglycemia alone. Insulin is not always efficacious in reducing the glycosuria, especially if the latter is very marked. In such cases the large doses of insulin that are necessary to influence the glycosuria must be supplemented by a diet relatively rich in carbohydrates. In ordinary cases, from 10 to 30 units of insulin, one half to be given before the two principal meals, is indicated. In a third subgroup can be placed cases of hyperglycemia, glycosuria and acetonuria. These constitute the most serious cases from the surgical standpoint, because of the danger of coma; hence the necessity of energetic measures to reduce the acetonuria. This can often be accomplished by a two or three day diet of green vegetables and, if successful, the next task is to treat the glycosuria. In general, the problem is not so simple. The ketones have decreased but have not entirely disappeared; hence it is necessary to give a diet poor in ketone-producing substances (especially animal more than vegetable proteins) and in addition employ insulin in doses of 40 units a day for the ordinary case in which a diet rich in carbohydrates is unnecessary. When the ketones have disappeared, the proteins can be increased, followed by treatment of the glycosuria and hyperglycemia. Diabetic patients in this third subgroup must be adequately nourished and not given too large doses of insulin, lest a hypoglycemia result. The patient

must be weighed every day. The rôle of insulin in such cases is not only to combat the acetonuria but also to allow one to give a diet that will prevent starvation.

Preoperative purgation of patients with diabetes has been criticized, but Fredet maintained that, if castor oil is employed instead of saline cathartics forty-eight hours before operation, supplemented by alkalis by mouth and by hypodermoclysis, the loss of liquid is compensated for and the bowel will be in more favorable condition. He was opposed to starving diabetic patients before operation. As postoperative measures the administration of sodium chloride in large amounts of fluid, carbohydrates (sugar by mouth or dextrose intravenously or by hypodermoclysis) and insulin are to be especially mentioned. The injection of insulin is to be immediately followed by a solution containing both dextrose and sodium chloride. If the patient becomes comatose, 20 units of insulin should be given intravenously every half hour and then at longer intervals (from one to two hours) as soon as the patient becomes conscious. Large doses of insulin are harmless as long as they are accompanied by administration of carbohydrates.

In diabetic patients, when immediate operation is indicated, the chief objective is to prevent coma, and hence to consider the patient in a precomatose state. From 20 to 30 units of insulin must be given immediately, depending on the results of the urine examination for sugar and acetone and of the blood for the sugar content. The intravenous injection of insulin is compensated for by intravenous administration of 300 cc. of a 3 per cent solution of dextrose.

Fredet quoted the statistics of the Mayo Clinic (3 per cent mortality in 2,000 operations) as showing how greatly the mortality had been reduced as the result of the use of insulin and preoperative preparation.

Jeanneney spoke of the diminution of local and general resistance in diabetic patients, which favors infection and necrosis. Infections are often followed by acidosis. Even though rendered "sugar free," the person with diabetes can never be regarded as a normal individual by the surgeon. The most to be feared are carbuncles in diabetics, 50 per cent of which ended fatally, before the discovery of insulin.

A crucial incision is advisable except in cases in which gangrene is present, in which early excision is indicated. The treatment of the diabetes should be supplemented by autohemotherapy.

In cases of moist gangrene of the extremities in diabetes, an energetic medical treatment is essential. If the arterial circulation is occluded, early amputation in healthy tissue is indicated.

In the discussion of these two papers, Jentzer of Geneva reported two cases of diabetic gangrene of the lower extremity in which diet, insulin and even periarterial sympathectomy had been of no avail. A removal of the adrenal of the same side was followed by healing of the local lesions, without amputation. On following up these patients, a disappearance of the glycosuria and acetonuria was noted; but one of them still has a marked hyperglycemia in spite of prolonged insulin therapy.

Ducuing of Toulouse found that the hyperglycemia was the most important of the three (glycosuria, acetonuria and blood sugar content) to watch.

Fontaine, Weil and Mandel of Strasbourg said that they have studied the relation of diabetes to adrenalectomy at the suggestion of Leriche. After removal of the pancreas in animals, the adrenal also was removed. They found that the latter procedure had no influence on the diabetes, being only of transitory character. The question as to whether the cortical secretions of the adrenals have an influence on the pancreas merits further study.

Leriche of Strasbourg also believes that the hyperglycemia is of more importance clinically than the glycosuria. In diabetic gangrene of the lower extremities, the question of whether an arteritis is present or not is of vital interest. Oscillometry is subject to error, but this is not true of arteriography. If this does not reveal an arteritis, it is not necessary to remove as much tissue. If an arteritis exists, only a high amputation is of any avail. One should never be in too much of a hurry to amputate.

Mayer of Brussels was able to avoid amputating in a case of diabetic gangrene of the foot by performing a periarterial sympathectomy, associated with preoperative and postoperative insulin therapy.

Rathery of Paris places more reliance on the glycosuria than on the sugar content of the blood. It is essential to avoid both dehydration and starvation in the preoperative preparation. During the postoperative period, dextrose solution by rectum and insulin are to be especially recommended; also heart tonics and sodium bicarbonate. He does not favor wide removal of carbuncles. As to gangrene of the lower extremities, one should not operate too soon. If amputation is indicated, it should be at as high a level as possible. Oscillometry does not give accurate information, and arteriography is too dangerous a diagnostic procedure in diabetes.

PNEUMONECTOMY

The reporters on the third subject were Monod of Paris and Bonniot of Grenoble, who said that the term "pneumonectomy" ought to be applied only to operations in which either the entire lung (total pneumonectomy) or one or several lobes (lobectomy) were removed, with ligation of the pedicle. To atypical, i. e., partial, removal the term "fragmentary pneumoresection" should be applied. After a review of the history of the subject, they stated that two problems, the technical and the clinical, presented themselves. The technical problem included our present knowledge of the anatomy, physiology and pathology of the lungs. The last named is the most important from the surgical standpoint, because of the great risks due to infection which it is necessary to prevent. The authors next reviewed the various methods of performing pneumonectomy and their indications. These methods could be divided into (*a*) cases in which there were no pleural adhesions and (*b*) those presenting them. As to lobectomy, the one-step method should be reserved to aseptic or slightly infected cases. Two-step operations had a much lower mortality. Not only close team work between the surgeon and the internist is essential, but the surgeon must have trained assistants and special apparatus. It is preferable to operate in a relatively large room, in air that is conditioned and sterilized.

The clinical problem involves a study of the three indications for pneumonectomy that exist at present: (*a*) primary cancer of the lung, (*b*) bronchiectasis and (*c*) pulmonary abscess. The first of these constitutes from 7 to 8 per cent of all cancers, the outcome has been hitherto always fatal, and at present no other method of treatment than pneumonectomy is available. In the latter, removal can be successful if the neoplasm involves only the first 2 cm. of the main bronchus and if no metastases exist in the pleura, chest wall, diaphragm or mediastinal lymph nodes. Cases without recurrence in which operation was performed five, six, seven and nine years ago show that the cited essentials of success can be fulfilled. The types most suitable for operation fortunately include cases in which an early diagnosis is possible. Only total pneumonectomy, with separate ligation of the various components of the pedicle, should be attempted.

As to the second indication, bronchiectasis, the question is In which cases is one justified in performing pneumonectomy or lobectomy? It is the general opinion that a bronchiectasis is a relatively benign condition, while pneumonectomy or lobectomy is a serious procedure. Now, the prognosis of bronchiectasis is still an unsolved problem. If it could be shown that the majority followed a benign course, only the severe

complicated cases could be considered as calling for operative measures. This, however, would limit surgery to hopeless cases, thus limiting the field in the future to cases with a potential high operative mortality. But if the clinician could learn to distinguish mild from severe cases at an early period, pneumonectomy would be able to forestall much future trouble.

As to abscess of the lung, the only indication for pneumonectomy or lobectomy is in cases that do not improve under other forms of treatment. This would include single old centrally located abscesses and those which are complicated by bronchiectasis.

The discussion was opened by Professor Sergent, who reviewed the indications for pneumonectomy. A progressive fragmentary pneumonectomy or even a simple pneumotomy will suffice for the majority of lung abscesses if carried out early, but if one waits until a progressive pyosclerosis complicated by secondary bronchiectases develops and the lobe or lung is transformed into a veritable purulent sponge, more radical measures are needed. As to chronic fetid bronchiectases, whatever their origin, nothing except operative removal can have an influence on a sclerotic mass of tissue penetrated by large dilated bronchi. Before a lobectomy is performed, however, a thorough exploration with iodized oil must be carried out to ascertain the condition of the other lobe or of the other lung, in the case of a pneumonectomy.

As to cancer of the lung, the chief problem is early diagnosis, because in addition to the serious operative risks the postoperative complications in the form of overlooked metastases cannot be underestimated.

Professor Bezançon, another internist who specializes in pulmonary disorders, said that much remains to be learned concerning bronchopulmonary suppuration. It is only through frequent radiographic examinations, with and without iodized oil, as well as a study of the pathology and bacteriology, that one can gain a more accurate idea of the clinical picture. Every case must be considered individually so that the chances for spontaneous recovery can be weighed as opposed to operation.

Another internist, Dr. Leon Kindberg, said that the principal indication for lobectomy is in cases of bronchiectasis, if possible at an early stage. The classic theory "progressive sclerosis of the entire respiratory tract following recurrent, little understood infections" can be applied to only the minority of cases. The two groups that ought to be borne in mind as suitable for operation are (1) acquired dilatation of chronic nature or following a bronchiectatic abscess and (2) superinfected congenital dilatation, a localized lesion. The prognosis in such cases is not a favorable one (from eight to ten years of life) and life soon becomes intolerable. Hence it is logical to undertake a radical treatment in such cases. Bronchiectases with a benign clinical course, aged patients or generalized lesions are to be excluded as potential operative cases. Kindberg is very enthusiastic with regard to lobectomy for these two groups of cases.

Edwards of London prefers a one-step operation, independent of the condition of the pleura. For bronchiectasis he has performed 113 lobectomies (one bilateral) with 14 per cent (sixteen deaths) mortality. Of ninety-seven patients who survived the operation, twelve died (of intercurrent disorder or tuberculosis) from one to five years after the operation. Sixty-four patients are alive from one to seven years after operation. Thirty-five of these are free from any evidence of bronchiectasis. Seven total pneumonectomies have been done for bronchiectasis, with two (28 per cent) deaths. As to cancer, he has performed sixteen lobectomies with three operative deaths (19 per cent), eight recurrences and six (37 per cent) cures dating back two, six, seven and nine years since the operation. Six total pneumonectomies were done on patients from 31 to 63 years of age with two operative deaths, one metastasis and three survivals.

Maurer, Rolland and Dreyfus-Le Foyer of Paris emphasized the great value of local anesthesia for certain cases, the necessity of ample drainage in lobectomies for infected lesions, and the fact that less radical operations than lobectomy should be given a thorough trial in cases of pulmonary abscess. Under the last named they include, from personal experience, (*a*) pneumotomy with resection of the external wall of the cavity for superficial localized abscess, (*b*) phrenicectomy for low juxtahilar lesions with ample drainage through a bronchus, and (*c*) partial superior thoracoplasty in suppurating high lying lesions. It is difficult in cases of cancer to determine radiographically whether or not the mediastinal lymph nodes are involved.

BERLIN

(From Our Regular Correspondent)

Sept. 14, 1936.

Race, Marriage Problems and Eugenics

To the long list of discussions of race that have appeared in present-day Germany, a new study has recently been added that distinguishes itself from many another printed utterance on the same topic by its scientific character. It is in the form of a lecture on ethnological questions given by Prof. Rudolf Fick, Berlin anatomist, before the Prussian Academy of Science. Many persons who, following the present fad, set themselves up as authorities on questions of race would be surprised to know that an exact determination of race from the shape of the skull requires no less than 4,000 measurements. However, even if one approaches the question in its most fundamental aspect, any study of cranial characteristics will present difficulties, since the nations of today represent not separate racial entities but rather ethnic mixtures. As Fick stated, the antiquity and the origin of the individual races are still controversial questions, despite the discoveries of prehistoric skeletal remains and the results of geological research on the history of the development of plants and animals. Our knowledge of the racial migrations still treads on rather uncertain ground. The abstract concepts of race and type are in need of more precise definitions. One ethnological question, namely, that of the invariable character of hereditary predisposition, is greatly complicated by the phenomena of mutations; a race of men undergoes modification even in the absence of interbreeding with outsiders. Finally it should be remembered that estimates of the extent of the Nordic racial element that has gone into the formation of the German nation exhibit wide differences. So it will be seen that there is still no dearth of unsolved ethnological problems.

The foregoing outline of Fick's discussion may be supplemented by a few remarks on developments in Germany with reference to racial questions. A recent report has it that the National Center for Racial Research has been swamped with inquiries with reference to the best means of maintaining accurate genealogical data. The members of many professions (writers, for example) must furnish the so-called great proof of their ancestry to the year 1800. For most persons, however, less formidable proofs are sufficient. For ordinary usage officialdom has devised a small genealogical passport known as a "mirror of ancestry." This document contains official genealogical data through the holder's grandparents and further space is provided for notations concerning the great grandparents and future marriages. Moreover, it is interesting to note that the national führer of medicine, Dr. Wagner, has recently deprecated the fact that an increasingly large number of incompetent persons are concerning themselves with questions of race and as a consequence causing inferiority complexes to develop among our people. It is not proper that such and such persons should be set down as of higher or lesser value to the community on the basis of any sort of imaginary characteristics of and erroneous ideas about various "races" that compose the nation.

To go from the general to the specific: Stettin has been the first German city to undertake an official genealogical card index designed to contain hereditary-biologic data on all the 270,000 inhabitants. In order to lay the groundwork for this project, questionnaires were distributed among the schools. The first 3,000 blanks already filled out have been received at the municipal bureau of health. There the data will be further coordinated, formed into genealogical tabulations and kept down to date. Also of interest is a suggestion appearing in the *Frankfurter Zeitung*, one of the most prominent German newspapers, that even now the extant literature of the racial question, as a perusal will show, fails to conform to the opinions of experts on racial policies. The principal trouble may be that a combination of political and scientific views is not yet evidenced by the majority of authors.

On the question of mixed marriages with Jews a decision has recently been handed down by the supreme court. Many of the so-called German blooded wish to have their own such marriages dissolved, in part for economic reasons, in part as a consequence of the new officially propagated views. Although the legislator subscribes to the principle that mixed marriages, which have existed for long periods (and which frequently, till a short time ago, were quite happy) cannot be lightly dissolved, the supreme court has decided that such mixed marriages, since the relationship is qualified by racial dissimilarity, may be destroyed more easily than other marriages and that their continued existence is no longer to be expected.

Racial dishonor through sexual intercourse with Jews or partial Jews is recognized in Germany as a valid legal concept. According to a communication of Dr. Kuhn from the national ministry of justice, of all persons legally sentenced for this offense to date 17.8 per cent were of German blood and 82.2 per cent were Jews. Of the defendants in such cases, seven eighths of the Germans and four fifths of the Jews were charged with offenses committed prior to the enactment of the Nuremberg laws.

According to the latest statistics on insanity compiled by Professor Rudin there are from 200,000 to 250,000 cases of schizophrenia in Germany and quite as many cases of epilepsy. At least 1 per cent of the total population must be classed as feebleminded, but since various investigators have not agreed as to where the border between feebleminded and normal should be drawn, one must place the figure at from 1 to 4 per cent of the entire population.

At a meeting of the National Socialist League of Physicians, Dr. Wagner, the national führer of medicine, cautioned against the philosophy that all persons who appear to present bad heredity must submit to sterilization. Negative hereditary factors should not, as all too frequently happens, be shoved to the fore. The discussion of these questions is by no means yet at an end. A court in Frankfort-on-the-Main has recently decided that the marriage contract between a eugenically healthy person and a person with defective heredity is not permissible even if the latter consents to sterilization. It is not right that a healthy person capable of reproduction should be bound to a sterile person. On the other hand, a man was recently sentenced to two months' imprisonment for an insult to a person of defective heredity. The insult had to do with the sterilization of the complainant's son, which had been performed on account of congenital feeblemindedness. In a recent far-reaching decision the Munich superior court dismissed as trivial objections to sterilization based on religious grounds. The concept of sterilization as an undeserved punishment is erroneous.

The charge for a sterilization by roentgen irradiation, including the fee of the physician who administers the treatment, is fixed at 50 reichsmarks; for sterilization by irradiation with a radioactive substance the charge is 40 reichsmarks and this includes the initial examination and the medical measures necessary for a proper arrangement of the radium deposit.

ITALY

(From Our Regular Correspondent)

Sept. 15, 1936.

Social Administration of Medical Care

Regulations have been given for the establishment of insurance societies for the administration of medical care to workers of different social standing in all Italian provinces. The societies will function under regulations which differ only in relation to the amount of prizes given when one marries and at the birth of children and as to the expenses of funerals. The insured has his medical care paid for and he is free to select his own physician. If he needs hospitalization, the insurance company is obliged to provide it. The Cassa Nazionale Malattie for department store employees has been functioning for several years, and about 200 firms have their employees insured with this society. Branches of the society were established at Libia last July. The benefits of rural insurance for maternity cases which, up to now, was given only to women working in rural industries is now being given also to women working on farms. Farm mothers will be given a fixed cash amount of 100 lire ($5) for each delivery aside from the necessary hygienic and medical service during pregnancy, delivery and the puerperium. The expenses made by the insurance society on farm mothers are met with a fund from contributions of the employers at a rate of 5 lire ($0.25) a year for each insured farm woman, an annual payment from the insured farm women of 2 lire ($0.10) and a contribution from the state. The new insurance society will insure about 1,500,000 farm women and will give services in about 100,000 deliveries a year. All women between the ages of 15 and 50 working on farms have to be registered. Insuring farm mothers became a need from the high mortality rate (3,000 women a year) in pregnancy, labor and the puerperium in those women. The annual mortality of new-born infants in Italy is as follows: 20,000 infants die from obstetric complications during the first five days of life, and 40,000 are born dead. By adding the figures from abortions and of infants who die in the first month of life, there is a loss of 160,000 lives for each million infants born.

Plans are being made for the establishment of an insurance society for administration of medical care to artists and professionals.

"Synthetic Wool," a Possible New Suture Material

Professor Mozzetti, in a lecture recently delivered before the Società Medico-Chirurgica of Venice, reported results on the use of synthetic wool in surgery, especially in laparotomy. Synthetic wool is the precipitate of milk casein. It can be spun into a fine thread, about 30 microns thick, which can be wound and woven. The product can be sterilized. The speaker left small wads of unwoven sterilized synthetic wool within the peritoneal cavity of one lot of rats and rabbits. In rats and rabbits in another lot he introduced synthetic wool threads through the abdominal wall and left the threads in the subcutaneous tissues, between the aponeurosis and the muscles and within the muscles. Later he made microscopic studies of the tissues of all the animals. The speaker exhibited moving pictures showing the tolerance that living tissues have to this synthetic material; also that the latter, when in contact with living tissues, especially the peritoneum, induces a polymorphonuclear neutrophil leukocytosis of short duration followed by progressive reabsorption of the material by the tissues. The reabsorption is slower in the spaces of the aponeurosis than in the other spaces but its tolerance to the material is the same in all the tissues. The speaker points out the possible surgical value of synthetic wool, which might later, perhaps, be a substitute for catgut and silk. The product is made up of nucleo-albumins.

Marriages

ALFRED G. GRUNWELL, Surg. Lieut. Commander, U. S. Navy, retired, Punta Gorda, Fla., to Miss Hattie Griffin at Black Mountain, N. C., September 3.

ROBERT BRECKINRIDGE WARFIELD, Lexington, Ky., to Dr. EMILY ELIOT STURGIS of Chevy Chase, Md., September 26.

ALBERT F. HARDT, Williamsport, Pa., to Miss Edythe Marie Black of Elmira, N. Y., in Glencarlyn, Va., August 31.

KENNETH BROWN ROTHEY, Spring Lake, N. J., to Miss Barbara Asquith Scott of Charlotte, N. C., August 14.

EDWIN BELL VAN NESS, Gulfport, Miss., to Miss Charlotte Allen of Bloomington, Ill., in August.

CHARLES FLOYD GRIFFITH, Griffin, Ga., to Miss Mary Riviere of Barnesville, in Macon, August 16.

JOSEPH J. GRAMLING JR., Wauwatosa, Wis., to Miss Marcy Walsh of Chicago, August 29.

LLOYD HISRICH, Batesville, Ind., to Miss Ella Whipple of Mount Vernon, August 16.

CLINTON A. HARDESTY, Paragould, Ark., to Miss Mildred McDaniel, September 1.

Deaths

William Buchanan Wherry, Cincinnati; Rush Medical College, Chicago, 1901; professor of bacteriology and hygiene at the University of Cincinnati College of Medicine, formerly known as the Ohio-Miami Medical College of the University of Cincinnati, where in 1909 he was assistant professor of bacteriology and associate professor from 1910 to 1913; assistant in bacteriology at the University of Chicago from 1901 to 1902, and associate from 1902 to 1903; professor of bacteriology, Oakland (Calif.) College of Medicine and Surgery in 1907; bacteriologist for the board of health of San Francisco and acting assistant surgeon on plague duty for the U. S. Public Health Service from 1907 to 1909; bacteriologist for the United States government laboratories in Manila, P. I., from 1903 to 1905; for many years member of the city board of health; member of the American Society for Experimental Pathology; visiting professor at the School of Hygiene, Manila, P. I., from 1929 to 1930; director of service, Cincinnati General Hospital; consultant in the U. S. Public Health Service; in 1914 with others reported the first case of tularemia in man which was proved bacteriologically to be due to Bacterium tularense; aged 60; died, November 1, in the Holmes Hospital, of cerebral embolism.

Wade Wright ✠ Roxbury, Conn.; Harvard University Medical School, Boston, 1914; formerly lecturer in pharmacology at the Columbia University College of Physicians and Surgeons and instructor of industrial medicine at the Harvard School of Public Health; served during the World War; for several years was in charge of the industrial clinic operated by Harvard as a department for clinical research in occupational disease problems at the Massachusetts General Hospital; at one time assistant medical director of the Metropolitan Life Insurance Company; aged 46; died, August 25, in Wallingford, of pulmonary tuberculosis.

John Shade Turner, Dallas, Texas; Louisville (Ky.) Medical College, 1889; member and past president of the State Medical Association of Texas; served during the World War; at one time professor of mental and nervous diseases at Baylor University College of Medicine and professor of neurology at the Southern Methodist University Medical Department; formerly member of the city board of health; medical director of the Southland Life Insurance Company; aged 70; died, August 29, in the Ozark Mountain range, near Fayetteville, Ark.

Robert Bland Grubbs ✠ Lieut. Colonel, U. S. Army, retired, Los Angeles; Columbian University Medical Department, Washington, D. C., 1899; entered the regular army as an assistant surgeon in 1901, was made a captain in the medical corps in 1906, a major in 1910 and retired with rank of lieutenant colonel in 1917 for disability in line of duty; served during the World War; aged 64; died, August 18, in Stockholm, of diabetes and arteriosclerosis.

Schuyler Weston Hammond ✠ Rutland, Vt.; University of Vermont College of Medicine, Burlington, 1895; member of the House of Delegates of the American Medical Association in 1905; past president and vice president of the Vermont State Medical Society; past president and member of the Vermont State Board of Medical Registration; on the staff of the Rutland Hospital; aged 69; died, September 22.

Henry Beckles Chandler, Arcadia, Calif.; University of Bishop College Faculty of Medicine, Montreal, Que., Canada, 1880; member of the Massachusetts Medical Society and the American Ophthalmological Society; professor of ophthalmology emeritus, Tufts College Medical School, Boston; formerly consulting surgeon to the Massachusetts Eye and Ear Infirmary, Boston; aged 81; died, October 7.

Robert Spear, East Chicago, Ind.; Trinity Medical College, Toronto, Ont., Canada, 1897; member of the Indiana State Medical Association; served during the World War; formerly member of the school board; fellow of the American College of Physicians; aged 68; on the staff of St. Catherine's Hospital, where he died, August 23, of lobar pneumonia and osteomyelitis of the left humerus.

Carl Philip Bauer ✠ Chicago; Rush Medical College, Chicago, 1922; assistant clinical professor of obstetrics and gynecology at his alma mater; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; assistant attending obstetrician and gynecologist to the Presbyterian Hospital; aged 40; died, September 19, of coronary thrombosis.

Lewis Stanton Ramsdell, Manistee, Mich.; Rush Medical College, Chicago, 1900; member of the Michigan State Medical Society; fellow of the American College of Surgeons; veteran of the Spanish-American and World wars; formerly mayor, and member of the board of education; aged 61; on the staff of the Mercy Hospital and Sanitarium, where he died, October 3, of cirrhosis of the liver.

Riley Moore Waller, St. Joseph, Mo.; Washington University School of Medicine, St. Louis, 1920; member of the Missouri State Medical Association; on the staff of the Missouri Methodist Hospital; fellow in surgical pathology at the Mayo Foundation from July 2, 1923, to January 1, 1927; aged 40; was found dead of an accidental bullet wound in August.

Eugene Arthur Stanley, Waterbury, Vt.; Jefferson Medical College of Philadelphia, 1904; member of the Vermont State Medical Society, the American Psychiatric Association and the New England Society of Psychiatry; aged 61; medical superintendent of the Vermont State Hospital for the Insane, where he died, August 19, of arteriosclerosis.

Frank Herbert Smith, Amherst, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; member of the Massachusetts Medical Society; for seven years physician to the Amherst College; formerly a member of the school committee, and member of the state legislature; aged 65; died, August 23, of coronary thrombosis.

William Henry Buskirk ✠ Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; fellow of the American College of Surgeons; served during the World War; for many years on the staff of the Hollywood Hospital; aged 55; died, August 7, of pneumonia following an operation for duodenal ulcer.

Albert Wilkinson ✠ Dallas, Texas; University of Nashville (Tenn.) Medical Department, 1900; fellow of the American College of Surgeons; member of the staffs of the Methodist, Parkland and St. Paul's hospitals and associate member of the staff of the Baylor Hospital; aged 63; died, August 19, of hypertension and cerebral hemorrhage.

William Joseph Allen, Orange, N. J.; Fordham University School of Medicine, New York, 1920; member of the Associated Anesthetists of the United States and Canada; member of the staffs of the Orange Memorial Hospital and St. Mary's Hospital; aged 42; died, September 2, in Asheville, N. C., of pulmonary tuberculosis.

Leroy Stewart Townsend, Beaver Falls, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1895; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 65; on the staff of the Beaver Valley General Hospital, where he died, August 24, of cerebral hemorrhage.

Peter Bachman Witmer, Abilene, Kan.; Jefferson Medical College of Philadelphia, 1896; member of the Kansas Medical Society; past president of the Dickinson County Medical Society; formerly on the staff of the Dickinson County Memorial Hospital; aged 67; died, August 24, of coronary thrombosis.

John Percy Wade, Baltimore; College of Physicians and Surgeons, Baltimore, 1891; member of the American Psychiatric Association; at one time superintendent of the Spring Grove State Hospital, Catonsville, Md.; aged 65; died, August 27, in the West Baltimore General Hospital, of a gunshot wound.

Joseph Graham Mayo ✠ Rochester, Minn.; State University of Iowa College of Medicine, Iowa City, 1927; son of Dr. Charles Horace Mayo; on the staff of the Mayo Clinic; aged 34; was killed near Alma, Wis., November 9, when the automobile in which he was riding was struck by a train.

Ross Elliot Black, New London, Conn.; Columbia University College of Physicians and Surgeons, New York, 1905; member of the Connecticut State Medical Society; served during the World War; health officer of Waterford; on the staff of the Home Memorial Hospital; aged 56; died, September 27.

Robert Whitehead, Victoria, Va.; University College of Medicine, Richmond, 1913; member of the Medical Society of Virginia; formerly secretary of the Lunenburg County Medical Society; served during the World War; aged 46; died, August 14, in Richmond, of cirrhosis of the liver.

Robert George Barckley ✠ Milford, Pa.; Jefferson Medical College of Philadelphia, 1891; formerly county medical director; on the staff of the Deerpark Sanitarium, Port Jervis, N. Y.; aged 76; died, September 26, in the Jefferson Hospital, Philadelphia, of carcinoma of the lip and neck.

George F. Washburne, Glen Ellyn, Ill.; Chicago Homeopathic Medical College, 1885; formerly health officer for the board of health of Chicago; at one time physician in charge of the Spring Hill Sanitarium, Hastings-on-the-Hudson, N. Y.; aged 81; died, August 12, of arteriosclerosis.

Ralph Henry Spencer, Grand Rapids, Mich.; University of the City of New York Medical Department, 1879; member of the Michigan State Medical Society; for many years on the staff of the Butterworth Hospital; aged 82; died suddenly, August 7, of cerebral hemorrhage.

Charles S. Bendure, Baxter Springs, Kan.; College of Physicians and Surgeons, Medical Department of Kansas City University, 1897; member of the Kansas Medical Society; formerly mayor of Baxter Springs; aged 76; died, September 12, of carcinoma of the rectum.

David Benjamin Tuholski ✠ Brockton, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1907; past president of the Plymouth County Medical Society; at various times health officer of Brockton; aged 56; died, August 31, of coronary thrombosis.

John James Wharton, Washington, D. C.; George Washington University School of Medicine, Washington, 1905; member of the Medical Society of the District of Columbia; aged 63; died, August 14, of hemiplegia, cerebral hemorrhage and arterial hypertension.

Alfred R. Warden, Grafton, W. Va.; Western Reserve University Medical Department, Cleveland, 1886; member of the West Virginia State Medical Association; formerly member of the state board of health and county health officer; aged 78; died, August 20.

Joseph B. Shaw ✠ Trenton, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1885; formerly mayor of Trenton; for many years on the staff of the Mercer Hospital; aged 75; died, August 14, of arteriosclerosis and cerebral hemorrhage.

William Bowen Scull ✠ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1885; member of the House of Delegates of the American Medical Association in 1911 and 1920; aged 73; died, October 1, in the Episcopal Hospital.

Harry Percival Woley ✠ Chicago; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; for many years connected with the New York Life Insurance Company; aged 72; died, August 12, in a hospital at Evanston, Ill.

Frederick Ellsworth Sweetsir ✠ Merrimac, Mass.; Medical School of Maine, Portland, 1888; for many years member of the school committee; on the staff of the Amesbury (Mass.) Hospital; aged 69; died, September 29, of angina pectoris and myocarditis.

Ralph Allen Smith, Tiffin, Ohio; Western Reserve University School of Medicine, 1935; resident on the staff of the Women's and Children's Hospital, Toledo; aged 26; died, August 10, in the Miami Valley Hospital, Dayton, of cerebral hemorrhage.

Frank L. Truitt ✠ Indianapolis; Medical College of Indiana, Indianapolis, 1904; medical director, second vice president and secretary of the Reserve Loan Life Insurance Company; aged 55; died, August 13, in the Methodist Hospital, of coronary thrombosis.

William Scaif Beaty, Poplar Grove, Ark.; University of Louisville (Ky.) Medical Department, 1892; member of the Arkansas Medical Society; aged 73; died, September 2, in a hospital at Memphis, Tenn., of prostatic retention and coronary occlusion.

Katharine Anne Corey Ford, Van Buren, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; for many years a medical missionary in China; aged 80; died, August 11, of fracture of the hip due to a fall and paralysis agitans.

John Somers Wimberly, Branchville, S. C.; Medical College of the State of South Carolina, Charleston, 1901; served during the World War; aged 56; died, August 26, at his summer home in Hendersonville, N. C., of nephritis and hypertension.

Ernest Payne Van Arsdall, Danville, Ill.; Loyola University School of Medicine, Chicago, 1916; past president and secretary of the Cass County Medical Society; aged 48; died, August 14, at the Lakeview Hospital, following a herniotomy.

Jesse Lee Mitchell, San Antonio, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1905; member of the State Medical Association of Texas; aged 55; died, August 2, of encephalitis and pulmonary tuberculosis.

Howard Louis Wilkinson, Hamilton, Ohio; Ohio State University College of Medicine, Columbus, 1911; member of the Ohio State Medical Association; served during the World War; aged 51; died, August 29, of cerebral hemorrhage.

Charles Ignatius West, Washington, D. C.; Howard University College of Medicine, Washington, 1895; professor emeritus of topographical and clinical anatomy at his alma mater; aged 67; died, August 4, of coronary thrombosis.

James Amasa Hampton Webb ✠ Wichita, Kan.; Kansas Medical College, Topeka, 1899; member of the Radiological Society of North America; served during the World War; aged 58; died, August 4, of carcinoma of the left lung.

Paterno C. Pavino, Manila, P. I.; University of the Philippines College of Medicine, Manila, 1932; member of the Philippine Islands Medical Association; junior resident to the Philippine General Hospital; aged 31; died, July 23.

William Hay Young ✠ Fredonia, Kan.; Eclectic Medical University, Kansas City, 1904; past president of the Wilson County Medical Society; for many years county health officer; aged 63; died, August 13, of mesenteric thrombosis.

Jesse H. Beekman, Sayreville, N. J.; Hahnemann Medical College and Hospital, Chicago, 1888; member of the Medical Society of New Jersey; for many years school physician; aged 81; died, September 24, of chronic myocarditis.

Frank Elmer Phillips, North Chelmsford, Mass.; College of Physicians and Surgeons, Baltimore, 1903; member of the Massachusetts Medical Society; aged 65; died, August 27, of coronary occlusion and cerebral hemorrhage.

James Freeman Williamson, Pleasantgrove, Miss.; University of the City of New York Medical Department, 1878; aged 82; died, August 24, in the Baptist Memorial Hospital, Memphis, Tenn., of bacillary dysentery.

Milton Steiner, New York; University and Bellevue Hospital Medical College, New York, 1933; intern at the Mount Sinai Hospital; aged 27; died, August 10, in the Desert Sanatorium, Tucson, Ariz., of heart disease.

Almond G. Phillips, Cleveland; Eclectic Medical Institute, Cincinnati, 1888; at one time coroner of Lake County; aged 83; died, August 25, in the City Hospital, of benign hypertrophy of the prostate and pyelonephritis.

Milton Dallas Van Horn, Churchville, N. Y.; Medico-Chirurgical College of Philadelphia, 1891; for many years member of the board of education; aged 70; died, August 25, of chronic nephritis and myocarditis.

John Silas Lankford ✠ San Antonio, Texas; University of Louisville (Ky.) Medical Department, 1882; past president city board of health and city board of education; aged 77; died, September 21, of myocarditis.

Willis S. Watson, Okmulgee, Okla.; Missouri Medical College, St. Louis, 1882; member of the Oklahoma State Medical Association; aged 81; died, August 9, in a local hospital, of cerebral hemorrhage.

James Edwin Smithwick ✠ Jamesville, N. C.; University College of Medicine, Richmond, Va., 1897; aged 66; died, August 24, in a hospital at Durham, of lymphosarcoma and bronchopneumonia.

Frances Lewis Bishop ✠ St. Louis; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; aged 72; died, September 11, in a hospital at Cleveland, of bronchopneumonia.

Gerhard Kaemmerling, San Diego, Calif.; National University of Arts and Sciences Medical Department, St. Louis, 1915; aged 55; was found dead, August 7, of myocardial degeneration.

William C. Thomson, Detroit; Detroit College of Medicine, 1896; aged 70; died, August 17, in the Tolfree Memorial Hospital, West Branch, Mich., of injuries received in an automobile accident.

Charles Frank Werner ✠ St. Cloud, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; aged 62; died, August 26, of angina pectoris.

Benjamin Robert Benson Jr., Cockeysville, Md.; University of Maryland School of Medicine, Baltimore, 1907; aged 51; was killed instantly, September 22, in an automobile accident.

Wilfred Lorne Atkinson, Selkirk, Manit., Canada; Manitoba Medical College, Winnipeg, 1911; aged 50; died, September 15, of myocardial fibrosis, arteriosclerosis and hypertension.

Fred Gilbert Vosika, Wilber, Neb.; John A. Creighton Medical College, Omaha, 1918; member of the Nebraska State Medical Association; aged 46; died, August 26, of myocarditis.

Torstein A. Lid, Marinette, Wis.; College of Physicians and Surgeons, Chicago, 1896; aged 68; died, August 15, in the Marinette and Menominee Hospital, of myocardial degeneration.

William Obie Dodson ✠ Willow, Okla.; Louisville (Ky.) Medical College, 1904; past president of the Greer County Medical Society; aged 55; died, August 5, of angina pectoris.

Niels Victor Mikkelsen, Park Ridge, Ill.; Chicago College of Medicine and Surgery, 1910; on the staff of the Lutheran Deaconess Hospital, Chicago; aged 56; died, August 24.

William D'Arcy Chace, Pleasanton, Calif.; University of California Medical Department, San Francisco, 1896; aged 62; died, July 8, of myocarditis and carcinoma of the stomach.

Gunni Julius Busck, Westfield, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1902; aged 65; died, August 18, of carcinoma of the stomach.

Charles C. Whitsett, Freeport, Ohio; Medical College of Ohio, Cincinnati, 1882; aged 76; died, August 26, in the Ohio Valley General Hospital, Wheeling, W. Va., of uremia.

Archie Clark Woodward, Decorah, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1894; aged 74; died, August 27, of coronary sclerosis.

Arthur Ambrose Swanick, Saratoga Springs, N. Y.; University of the City of New York Medical Department, 1893; aged 67; died, August 22, of coronary sclerosis.

William Alexander Hale, Mobile, Ala.; Chattanooga (Tenn.) Medical College, 1906; also a druggist; aged 54; died, August 7, in a local hospital, of cholecystitis.

Mayville Sumpter Kelliher, Lompoc, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1891; aged 72; died, July 17, of carcinoma of the pancreas.

Samuel James Hindman, Los Angeles; College of Physicians and Surgeons, Baltimore, 1881; aged 80; died, August 9, of cerebral hemorrhage and arteriosclerosis.

Elroy Vernon Bishop, Cleveland Heights, Ohio; Cleveland Homeopathic Medical College, 1901; aged 62; died in September of chronic encephalitis and pneumonia.

Melvin J. Williams, Independence, Mo.; Medical College of Indiana, Indianapolis, 1881; aged 82; died, August 11, of arteriosclerosis and bronchopneumonia.

Porter W. Barbe, Oswego, Kan.; Cleveland Medical College, 1880; member of the Kansas Medical Society; aged 90; died, September 7, of prostatitis.

Oscar Martin, Newton, Mass.; Tufts College Medical School, Boston, 1910; aged 57; died, August 30, in Rockport, of acute dilatation of the heart.

James Frazer MacPherson, San Diego, Calif.; University of Buffalo School of Medicine, 1892; aged 74; died, August 27, of arteriosclerosis and nephritis.

Hugh W. Buckingham, Mahaffey, Pa.; Jefferson Medical College of Philadelphia, 1887; aged 81; died, August 31, of chronic interstitial nephritis.

Maximilian George Wiese ✠ Buffalo; University of Buffalo School of Medicine, 1931; aged 29; died, August 29, of influenza and endocarditis.

Walter M. Odum, Brunswick, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1911; aged 48; died, August 23, of pneumonia.

Joseph H. Todd ✠ Wooster, Ohio; Bellevue Hospital Medical College, New York, 1865; aged 99; died, August 11, of coronary arteriosclerosis.

Edward Franklin Dann, San Diego, Calif.; Rush Medical College, Chicago, 1870; Civil War veteran; aged 90; died, August 14, of senility.

William Wilberforce Carter, Wathena, Kan.; Jefferson Medical College of Philadelphia, 1873; aged 86; died, August 4, of arteriosclerosis.

John Albert Vallery, Memphis, Tenn.; Chicago Hospital College of Medicine, 1915; aged 46; died, July 20, in St. Joseph's Hospital.

Robert Lincoln Finley, Du Quoin, Ill.; Hering Medical College, Chicago, 1912; aged 49; died, August 18, at Thebes, of arteriosclerosis.

Edgar Allen Ross, St. Paris, Ohio; Kentucky School of Medicine, Louisville, 1896; aged 65; died, August 31, of cerebral hemorrhage.

William Henry McKeever, Philadelphia; Hahnemann Medical College of Philadelphia, 1909; aged 58; died, August 25, of nephritis.

Sidney Scott Prather, Cincinnati; Louisville (Ky.) Medical College, 1897; served during the World War; aged 63; died, July 17.

John Wolfe, Delphos, Ohio; Ohio Medical University, Columbus, 1896; served during the World War; aged 69; died, July 9.

John E. Outwater, Bronson, Mich.; Eclectic Medical Institute, Cincinnati, 1882; aged 90; died, August 31, of cerebral hemorrhage.

Henry McG. Marsh, Danville, Ky.; Homeopathic Hospital College, Cleveland, 1884; aged 75; died, August 20 of cerebral hemorrhage.

Hayes Abernathy, Adamsville, Tenn.; Memphis Hospital Medical College, 1903; aged 61; died, September 3, of cerebral hemorrhage.

Charles Leonard Ferris, Carthage, Ill.; Rush Medical College, Chicago, 1878; aged 82; died, August 9, of chronic myocarditis.

Carl Schumann, Brooklyn; Long Island College Hospital, Brooklyn, 1909; aged 62; died, August 4, of carcinoma of the gallbladder.

Marcus L. Perry, Tulsa, Okla.; College of Physicians and Surgeons, Dallas, Texas, 1906; aged 66; died, August 15, of pneumonia.

Edward H. Johanning, Cincinnati; Medical College of Ohio, Cincinnati, 1896; aged 62; died, August 17, of pelvic peritonitis.

J. M. Hamilton, Downsville, La.; Medical College of Alabama, Mobile, 1880; aged 88; died, August 7, of dilatation of the heart.

Ugo Sissa, New York; Eclectic Medical College, Cincinnati, 1915; died, August 22, of meningo-encephalitis and heart disease.

C. Lambert Townsend, Joliet, Ill.; Chicago Medical School, 1922; aged 52; died, July 15, in St. Joseph's Hospital.

James Ross McCabe, Strathroy, Ont., Canada; Trinity Medical College, Toronto, 1889; aged 78; died, August 7.

James A. Green, Amarillo, Texas; Memphis (Tenn.) Hospital Medical College, 1890; aged 72; died, August 22.

Francis Vincent Moore, Los Angeles; Tufts College Medical School, Boston, 1909; aged 53; died, August 6.

Richard C. Huntington, Enid, Okla.; Chicago Physio-Medical Institute, 1889; aged 71; died, July 19.

Peter J. Brown, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1889; died, August 10.

W. W. Richmond, Prestonsburg, Ky.; Louisville Medical College, 1897; aged 63; died, July 28.

Francis J. W. Cook, Toledo, Ohio; Toledo Medical College, 1904; aged 59; died, August 1.

Bureau of Investigation

THE SHOW MUST GO ON

How an Eminent Comedian Survived Gas Pains by Using Van-Tage

Cinema addicts will rejoice that a great tragedy of the American theahta (theatre to you) has happily been averted. Mr. Robert Woolsey "of the famous Wheeler and Woolsey team" has just broken down and confessed in an "unsolicited" three-column advertisement for the package medicine "Van-Tage" that he often thought he would have "to quit pictures and retire." "Only a few people have known about it," but Mr. Woolsey suffered from "a gaseous stomach disorder and sluggish bowel complications. . . . My food set up a gaseous disturbance in my stomach, causing gas cramps and pains . . ."

Which just goes to show how seldom an audience realizes the tragedies behind the Pagliacci of the silver screen. Those

ROBERT WOOLSEY

Of the Famous Wheeler & Woolsey Team of Hollywood Screen Stars

Tells What

VAN-TAGE

Did for Him!

UNSOLICITED!

This is an Unsolicited Testimonial, Given Freely to the Makers of Van-Tage, Without Any Payment of Any Kind Being Made Therefor.

Robert Woolsey, of the Famous Wheeler & Woolsey Team of Hollywood Screen Stars, is the latest Prominent American to publicly endorse VAN-TAGE!

This is the "Amazing New Medicine," for Upset Stomach, Irregular Bowels, Liver Bile Congestion, and Sluggish Kidneys, which has gained such Spectacular Success in the past few months, with sales of Hundreds of Thousands of Bottles its first year in The West.

It is now being introduced to large crowds daily here by Special Van-Tage Representatives, direct from The Van-Tage Laboratories, in LOS ANGELES at THRIFTY Drug Store, 543 S. Broadway; in HOLLYWOOD at THRIFTY Drug Store, Santa Monica and Western; in PASADENA at THRIFTY Drug Store, Colorado and Euclid; and in LONG BEACH at THRIFTY Drug Store, 4th and Pine.

At Hollywood, Capital of the Motion Picture World, Van-Tage is a Sensation. This medicine is made there. The Immense Van-Tage Laboratories are located at Hollywood. So the Stars of the Screen are intimately acquainted with this Great Compound and

grimaces of Mr. Woolsey's which we mistook for comedy gestures were, in reality, gas pains. "I went for days without any food at all." Going without food is not unknown to many thespians. Bob Burns of "bazooka" fame freely admits missing many a meal during his vaudeville days. But Mr. Woolsey suffered in silence, preserving the age-old tradition of the theatre, "The show must go on." "They did not know of his Daily Struggle! . . . Now, however, the Shadow has been removed. The Daily Struggle has come to an end. So the story can be told . . . It's hard work in the movies . . . So, from the start, I found pictures a severe physical strain. . . . Sometimes I felt so weak I could hardly get to the studio. . . . Something saw me through—sheer will-power, I guess . . ."

Poor Mr. Woolsey! Sitting in the lap of Hollywood luxury, turning out smash hit after smash hit, and about to give up the drayma (drama this time!). But then came the dawn. Mr. Woolsey was introduced to a Mr. Gilbert H. Mosby, "owner of a Medical Compound." And—but let Mr. Woolsey tell us in his own words: "I was amazed to discover that this medicine was what I had needed all the time . . . Now I have taken 3 bottles of Mr. Mosby's Van-Tage . . . And I get the full good out of my food and have more strength for my Movie Work . . ." Imagination fails when we try to visualize the Woolsey comedy after three bottles of Van-Tage.

It is a shame Mr. Mosby did not know of actor Woolsey's gaseous stomach before, because Mr. Mosby was the originator of another notable discovery, "Indo-Vin," which, a few years back, was "banishing poisons that foster stomach troubles . . ." And, Mr. Woolsey, if Mr. Mosby had given you a shot of his "Konjola," which had thirty-two ingredients, we tremble to think what contortions you might have achieved. Alas, Mr. Mosby isn't plugging Konjola any more, although in 1930 he was enthusiastic over it and flooded the newspapers with testimonials. A testimonial from a Mr. A. R. Sheckler appeared in an eastern newspaper on August 20, 1929, stating: "Another victory for Konjola in a seemingly hopeless case after all the others failed." The only thing that was wrong with this, Mr. Woolsey, was that the unfortunate fellow died three weeks before the testimonial appeared.

So far as we are able to learn, Mr. Mosby has never claimed to be a pharmacist, chemist or physician. Yet, by some esoteric process, he is able to conjure up a shotgun cure-all every so often. Konjola was reported to contain:

Caramel	Sarsaparilla Root	Angelica Root
Cascara Sagrada Bark	Yellow Dock Root	Boneset Leaves and Tops
Glycerin	Senna Leaves	Potassium Iodide
Gentian Root	Black Cohosh Root	Blue Cohosh Root
Queen Meadow Root	Oil of Sweet Orange	Golden Seal
Pipsissewa Herb	Wild Ginger Root	Spikenard Root
Galangal Root	Burdock Root	Aletris Root
Salicylic Acid	Pink Root	Lady Slipper Root
Poplar Bark	Sodium Benzoate	
Pepsin (Fluffy)	Senega Root	

Some time ago the A. M. A. Chemical Laboratory made some cursory tests of Van-Tage, and it appeared from these that the essential drugs in it were laxatives and iodides.

We all rejoice in your remarkable recovery, Mr. Woolsey, and we feel mean for ever having criticized your comedy. But how were we to know it was gas pains?

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Syn-O-Scope and Synex.—Syn-O-Scope Laboratories, Los Angeles. Composition: Synex consisted essentially of volatile oils including eucalyptus, a trace of an alkaloid, alcohol (20 per cent) and water (the Syn-O-Scope was the accompanying device). For sinus troubles, hay fever, asthma, etc. Fraudulent therapeutic claims.—[*N. J. 23294; May, 1935.*]

Bullock's Husk Dressing.—Bullock-Walker Mfg. Co., South Orange, N. J. Composition: Essentially calomel (5.35 per cent), zinc oxide (3.75 per cent), bismuth subnitrate (1.41 per cent), aluminum sulfate (0.1 per cent), and phenolic substances including resorcin and salicylic acid (a trace), in an ointment base. For syphilis, hemorrhoids, ulcers, cancer, boils, etc. Fraudulent therapeutic claims.—[*N. J. 23297; May, 1935.*]

Woolford's Sanitary Lotion.—Kells Co., Newburgh, N. Y. Composition: Calcium sulfide (1.8 per cent) and sulfur (2.5 per cent) and water. For mange and other skin disorders. Misbranded because falsely labeled "Sodium Chloride 5.64 Per Cent," whereas it contained no sodium chloride (common salt). Fraudulent therapeutic claims.—[*N. J. 23288; May, 1935.*]

Mentholated Chest Rub.—Hance Bros. & White, Inc., Philadelphia. Composition: Essential oils including menthol, camphor and eucalyptol, in petrolatum. For sore throat, coughs, tonsillitis, asthma, muscular rheumatism, etc. Fraudulent therapeutic claims.—[*N. J. 23298; May, 1935.*]

Brumfield's Asthma and Cough Remedy.—J. P. Brumfield, Galena, Kan. Composition: Essentially chloroform, an antimony compound, a fatty oil, alcohol, glycerin, gum, sugar and water. Fraudulent therapeutic claims.—[*N. J. 23292; May, 1935.*]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TRYPARSAMIDE AND OPTIC ATROPHY—TREATMENT OF SYPHILIS

To the Editor:—H. C., a widower, aged 37, came to my office complaining of difficulty in starting the urinary stream. Fifteen years ago he had gonorrhea but never noted a sore. The gonorrhea was apparently cured. Six years ago he married and he has a son 5 years of age apparently normal. Two years ago his wife died of a ruptured appendix. The difficulty in starting the stream started ten years ago and for the past year has been worse. He has noted a change in gait; e. g., it is slightly different from ever before. He never had a rash. His weight is about 185 pounds (84 Kg.). The eyes do not react to light, but react to accommodation. The eye grounds show a clear cut view of the disk, sharply outlined. The Romberg test discloses slight swaying but no loss of balance with an accompanying dizzy feeling (heel and toe together and eyes closed). The knee jerks are absent. The genitalia are normal. Rectum examination discloses the prostate moderately enlarged, baggy and markedly tender, with loss of contour and no palpable vesicles. A prostatic smear was loaded with pus and clumps. Passage of a bougie did not disclose a stricture. A No. 22 F. steel sound passed with ease. Cysto-urethroscopy revealed the bladder mucosa and orifice normal. In the posterior lateral dome of the bladder was a fine trabecular-like area of about 5 cm. diameter. The trigon is slightly injected. The vesical neck shows no irregularity or encroachment of prostate; there is no bas fond. The posterior urethra is covered with a gray white plastic exudate. The prostatic gland orifices appear markedly golf cupped. The vein is markedly enlarged, irregular and boggy, and bleeds readily. The blood Wassermann reaction was 3 plus and 4 plus. The spinal Wassermann reaction was positive (degree not known), the fluid clear and limpid. The colloidal gold test was 5433200000. The diagnosis is (1) tabetic dementia paralytica with vesical involvement and possibly optic nerve involvement; (2) chronic prostatovesiculitis and urethritis. The plan of treatment adopted was that the patient should receive prostatic massage two times a week and later posterior instillations once a week with silver nitrate from 0.5 to 1 per cent. He has received iodides by mouth as much as 50 grains (3.25 Gm.) each day with intervals of rest to obviate toxic results. He has received sodium iodobismuthite 2 cc. twice a week for ten doses. He is to get for two weeks, twice a week, a mercurial solution 1 grain (0.06 Gm.) followed by tryparsamide 0.2 Gm. for first dose and then 0.3 Gm. once a week interspersed with mercurial solution 1 grain for from ten to fifteen courses. Before the tryparsamide injections are started he will be seen by an eye physician and one week after the injections for eight visits to obviate a toxic effect on optic nerve. Between courses, I intend to continue with the bismuth compound for from six to eight weeks, as described. After each course I intend to take a spinal and blood Wassermann test. Should this fail I will then proceed with malarial treatment. Since I began treatment he has felt more "peppy" and sharp, but his vesical difficulty is still present. No definite changes of sight have been elicited before or since treatment and there has been no history of loss of sight acuity at any time. Have you any suggestions to improve this scheme of treatment? Should it be found that tryparsamide cannot be used, what course should I take? Is this scheme adequate? Kindly omit name. M.D., New York.

ANSWER.—So far as the syphilologic aspect of the case is concerned, the information furnished is inadequate so far as spinal fluid data and diagnosis of a possible primary optic atrophy are concerned. So long as physicians use the phrase or are willing to content themselves with "spinal fluid Wassermann," clinical laboratories will not supply the necessary information for the interpretation of a patient's neurosyphilis from the serologic standpoint. An adequate diagnosis by competent ophthalmologists of the condition of this patient's optic nerves is absolutely necessary to treatment decision here. In discussing his plan of treatment, the questioner evidently fears toxic results from a daily 50 grain dose of iodide by mouth—a fear which in general is unjustified. He does not state what type of mercurial solution he intends to employ, plans to begin tryparsamide without adequate ophthalmologic control, and speaks of from ten to fifteen courses of tryparsamide and the mercury preparation without specifications as to the length of each course. The dosage of tryparsamide as given in the inquiry is either a typographical error or a complete miscomprehension of the standard dosage for this drug, which ranges from 1 to 3 Gm. instead of from 0.2 to 0.3 Gm. Not knowing the length of the tryparsamide course or the number of mercurial injections intended, it is rather difficult to judge whether or not this patient will have the opportunity to eliminate accumulated heavy metal, either mercury or bismuth, while he is following this regimen. So far as one can judge, the intention is to make heavy metal treatment continuous over a long period, which would in all probability lead to serious accumulation and toxic effect.

Tryparsamide should not be employed if, before treatment is begun, there is definite objective evidence of primary optic atrophy. Significant changes in the optic nerve likely to contraindicate the use of tryparsamide are more frequent in the taboparetic syndrome than in the preparetic states as such. Accordingly, special caution should be used in interpreting even slightly abnormal eye conditions. For the proper examination of these eyes, perimetric tests of the visual fields, not rough tests, are essential, and the visual acuity, changes in the blind spots and scotomas should be specially studied. If absolutely no abnormalities appear, the patient may be given his first injection of tryparsamide, 1 Gm., to be followed in two or three days by field and visual acuity tests. The tryparsamide injection may be repeated in a dosage of from 2 to 2.5 Gm. on successive weeks, each injection being followed by repetition of the ophthalmologic examination. If the slightest abnormalities appear, the treatment should at once be discontinued. Heavy metal therapy may be employed as a preliminary (preferably with a bismuth compound), one course of from six to ten injections, the subsalicylate being used at weekly intervals. Apparently the inquirer plans to use something approximating the original technic of Lorenz and Loewenhart, which combined the administration of mercuric salicylate intramuscularly with that of tryparsamide in broken courses, usually of ten injections each, with rest intervals of from four to eight weeks between courses. This method has been supported by subsequent reports of a favorable nature, but it has been departed from by observers of large experience such as Solomon and Bunker, both of whom have given tryparsamide over periods ranging from one to eight years with injection intervals of one week during the first year or two and longer intervals subsequently. While one cannot infer from the inquiry just how soon the inquirer intends to reexamine the patient's spinal fluid, it may be said that on tryparsamide therapy not much less than a year should elapse before an effort is made to draw a definite conclusion as to serologic results.

If the use of tryparsamide proves to be contraindicated either by preliminary examination or by ophthalmologic examinations repeated weekly during the first eight or ten injections of the drug, it would be advisable to consider either intraspinal therapy by the unmodified Swift-Ellis technic or some form of fever therapy. Moore, who has been the most vigorous advocate of intraspinal therapy, rates it superior to fever therapy. The method is an inconvenient and now relatively less accessible one for many patients. It should be emphasized that it is probably more effective in controlling the optic atrophy than in putting a stop to the progress of the tabetic dementia paralytica as a whole. The considerations that would enable one to judge of the patient's fitness for one or the other form of pyrexial treatment are not given by the inquirer (the cardiovascular condition, and so on) but it may be remarked that malarial therapy is not usually well tolerated by patients carrying bladder infections, which may give rise to an ascending pyelitis and pyelonephritis. In place of malaria the use of typhoid vaccine, either as the H antigen or the unchanged vaccine, in divided doses, according to the technic of Nelson, is an easily controllable method, giving satisfactory immediate results, but still under investigation as to the permanence of the effects obtained. Physical methods of inducing fever may be specially available for this patient, and their controllability (especially the Kettering hypertherm) may make them preferable to malaria. On the other hand, if the patient is of an age and in a general condition fit to take malaria without material risk, it can still safely be rated as the most effective all around measure against this type of neurosyphilis.

It should be clearly realized both by the inquirer and by his patient that if a primary optic atrophy exists it may progress in spite of any form of treatment employed, and it may seem to be arrested likewise by almost any form of treatment employed except tryparsamide. This drug may be regarded as positively contraindicated if any sign of primary optic atrophy can be identified. The same is true of acetarsone.

EFFECTS OF LIQUID PETROLATUM ON VITAMIN A

To the Editor:—Please give me references to articles discussing the lower ability of the body to utilize vitamin A when mineral oil is administered. MIRIAM ZELLER GROSS, Newark, N. J.

ANSWER.—As brought out in the editorial in THE JOURNAL Aug. 27, 1927, page 694, it is important when considering the effect of liquid petrolatum on the absorption of vitamin A to distinguish between the actual vitamin and provitamin A, such as carotene. The deleterious effect of liquid petrolatum on the absorption of provitamin A has been reported by several investigators. Thus Jennie I. Rowntree (The Effect of the Use of

Mineral Oil upon the Absorption of Vitamin A, *J. Nutrition* **3**:345 [Jan.] 1931) verified the earlier report by Dutcher that liquid petrolatum interferes with the absorption of vitamin A from the intestinal tract of animals, and the effect appears to be dependent on the amount of vitamin A in the diet. Richard W. Jackson (The Effect of Mineral Oil Administration upon the Nutritional Economy of Fat-Soluble Vitamins: I. Studies with the Vitamin A of Butter Fat, *J. Nutrition* **4**:171 [July] 1931) showed that liquid petrolatum caused a considerable loss of vitamin A to the animal organism if the liquid petrolatum was mixed with the vitamin A (in the form of butter fat) prior to ingestion but not if the liquid petrolatum was administered separately from the butter fat. In later work Jackson (Effect of Mineral Oil Administration upon Nutritional Economy of Fat-Soluble Vitamins: Studies with Vitamin A Factor of Yellow Corn, *J. Nutrition* **7**:607 [June] 1934; Effect of Mineral Oil Administration upon Nutritional Economy of Fat-Soluble Vitamins: Studies with Vitamin D of Irradiated Ergosterol, *ibid.* **7**:617 [June] 1934) showed that the deleterious effect of the liquid petrolatum is greater with the vitamin A factor of yellow corn than with vitamin A obtained from animal sources. Dutcher, Harris, Hartzler and Guerrant (The Assimilation of Carotene and Vitamin A in the Presence of Mineral Oil, *J. Nutrition* **8**:269 [Sept.] 1934) bring out the interesting fact that liquid petrolatum interferes with the absorption of carotene, which makes up the bulk of vitamin A of vegetable sources, but has a less marked detrimental influence on the absorption of vitamin A such as makes up most of the vitamin A potency of butter fat or cod liver oil. The two articles by Jackson in June 1934 also demonstrate this fact.

In general, therefore, it may be stated that in the amounts usually prescribed and under the conditions in which it is taken, the effect of liquid petrolatum on the absorption of vitamin A of the human diet would probably be negligible. On the other hand, experimental evidence shows clearly that petrolatum is a poor vehicle for vitamin A, particularly provitamin A, such as carotene, and that its use is not to be recommended.

HIGH ACIDITY OF URINE

To the Editor:—What is the significance of a highly acid urine (over 40 degrees, a degree being equivalent of 1 cc. of tenth-normal acid per hundred cubic centimeters of urine) in adults? What conditions besides overconsumption of acid-ash foods produce highly acid urines in adults? Has it definitely been proved to have any relation to the reaction of the blood or the reaction of the tissues? Are there any conditions for which the production of an alkaline urine is beneficial? Is it advisable through the use of diet (or diet and the administration of soda) to regulate the urine to a normal range of acidity or to a point of alkalinity? Please omit name.

M.D., Washington.

ANSWER.—The normal urine is acid when the entire twenty-four hour specimen of a person on a mixed diet is tested. This reaction is due to the presence of different acid and basic constituents but mostly depends on the relative amounts of monobasic and dibasic sodium and potassium phosphates. The acidity runs quite parallel with the hydrogen ion concentration. The normal range of p_H value is from 5.0 to 8.0, the average being around 6.0.

The kidneys assist the lungs in maintaining the neutrality and alkali reserve or buffer power of the blood. The total acid secreted daily by the kidneys is equivalent to from 200 to 500 cc. of tenth-normal acid, or from 200 to 500 units. This acidity is due largely to acid phosphates and to a minor extent to organic acids.

Many foods yield acid end products in metabolism. The sulfur of proteins and the phosphorus of lecithin are changed into acids. Vegetable and fruit acids undergo oxidation and give rise to alkaline carbonates. It is therefore obvious that the diet is one of the most important factors in affecting the reaction of the urine.

The reaction of the urine varies during the day. The acidity is usually highest in the morning before breakfast and diminishes after a meal. Two or three hours after a meal the urine may even become alkaline, because of temporary absorption of the acid by the food in the stomach. The alkalinity may render the urine turbid from the precipitation of phosphates. This temporary change in reaction of the urine has been called the alkaline tide. An exclusive protein diet causes an increase of acidity; such an increase is seen also in conditions of acidosis, in some infectious diseases, after excessive exercise, and hot baths with free perspiration. After ingestion of large amounts of vegetables or fruits or alkaline waters there is a decreased acidity or alkalinity. It is generally advisable to regulate the diet to keep the urine within a normal range of acidity.

On a normal diet a total acidity of over 500 units in twenty-four hours indicates a tendency toward acidiosis, and a total under 100 units a tendency toward alkalosis. In many pathologic conditions, changes in the urinary reaction are found. The amount of acid secretion by the stomach, absorption of transudates or exudates, vomiting, acute infectious diseases, pyelitis and cystitis, as well as the diet, may influence the reaction of the urine. An alkaline urine is often found with bacterial infections of the urinary tract, often accompanied by pyuria. In such cases the use of sodium acid phosphate or ammonium chloride to render the urine acid for several days may be of value.

The study of the acidity of the urine is an aid in following the effects of dietary or drug treatment, in the estimation of the alkali reserve, and in the treatment of urinary infections.

The artificial alteration of urinary reaction may be effected by various drugs. Mineral acids will increase the acidity, but their usefulness is limited. Sodium biphosphate and ammonium and calcium chloride are most often used. Bicarbonates, citrates and acetates are employed to reduce the acidity or to increase the alkalinity of the urine.

The production of an alkaline urine is beneficial in lithuria with a high uric acid content of the urine, and in cystinuria. An acid urine is of value in oxaluria because it increases the solubility of oxalates, and also in phosphaturia. Normally the kidneys secrete from 1 to 5 Gm. of phosphoric acid in the form of phosphates. At times the amount rises or the phosphates are precipitated by a change in reaction. In phosphaturia the urine is usually alkaline and cloudy when voided. The treatment should remove any infection present, lower the intake of calcium, and render the urine acid with acid sodium phosphate. The fluid intake should be increased.

POLYP COMPLICATING PREGNANCY

To the Editor:—A few months ago a woman came to me for advice on account of having bleeding from the vagina. The patient was a multipara and was in her eighth month of pregnancy. She did not have any bleeding up to a few days after she was due in her eighth month. Examination revealed a small polyp at the cervix of the uterus. The polyp had a pedicle about an inch long, which could be felt by the finger but could not be seen because the body of the polyp will not allow the pedicle to be seen. The patient was put on observation and meanwhile the literature at hand was looked up. De Lee and Williams in their respective books on obstetrics do not explain how to handle such cases and the patient was observed until labor. She kept doing well with the slight bleeding (it was necessary to use one or two napkins) every four or five days, until one day just before labor set in she lost about 150 Gm. of blood. An examination made while she was bleeding showed that bleeding came from one surface of the polyp. It stopped almost immediately with pressure made with gauze while I was looking through the vaginal speculum. The day after this bleeding, labor pains set in and a child weighing 9 pounds 4 ounces (4,200 Gm.) was born six hours after the pain had started. Convalescence was uneventful and at present she is getting ready to be operated on for the polyp. This happened a few months ago. Now another patient has come to me. She is a primipara in good health, well built, 28 years old, has been married for two years and missed her monthly period. A few days afterward she started to bleed slightly through the vagina. At first she thought that menstruation was going to set in but time went by, her abdomen was getting large and bleeding persisted. Almost every morning she notices a small clot of blood, which comes down through the vagina. Examination of the patient shows that she is normal in every respect (pelvic measurements, blood pressure, heart) except that a small bleeding polyp was found in the cervix. This polyp is almost exactly the same as the one in the other case. It is small and red and has a pedicle that can be felt by the finger but not seen by the eyes because the body of the polyp does not allow the pedicle to be seen. The question for me and the one for which I inquire is Shall this patient be allowed to go on to term with the polyp to be operated on after delivery or shall the polyp be operated on now and the risk taken of starting up an infection in order to stop a slight bleeding or to prevent a larger bleeding later on? Please omit name.

M.D., Puerto Rico.

ANSWER.—A few years ago Heidler (*Arch. f. Gynäk.* **121**:429, 1924) reported a death which occurred after delivery and which he attributed to the removal of a cervical polyp six weeks before delivery. Necropsy revealed a small purulent hematoma at the site from which the polyp had been removed and the vessels around this area showed septic thrombi. Heidler believed that these pathologic conditions developed soon after removal of the polyp and that this infection was a latent one but was actuated by the vaginal manipulations and instrumental delivery the patient had. This author therefore strongly counseled against any manipulation of the cervix during pregnancy. On the other hand, there have been reports of large series of cases in which the electric cautery was used during pregnancy for cervical erosions and other conditions and in which, in spite of this treatment, miscarriages or other complications were not observed.

Cervical polyps often become infected. Furthermore, in pregnancy particularly, the blood which accumulates in the vagina

from a polyp may give rise to infection. Likewise, the trauma of labor may bruise the polyp and an infection may follow. Hence in the case cited it is probably best to remove the polyp by twisting the pedicle with a long curved clamp and then cauterize the base of the pedicle with an electric cautery. Such treatment has been carried out without any untoward results.

BRONCHIAL ASTHMA WITH INFECTION OF UPPER RESPIRATORY TRACT

To the Editor:—My husband, Dr. S., wishes me to write to you with regard to our 7 year old son. He has had asthma since he was 2 and gets it only during the winter months, after he has first contracted a cold. He is desperately ill with it for about thirty-six hours and then is better until he has another cold, his resistance becoming lower as the winter progresses. He has already had one attack. He often develops ear and gland trouble as well. We should like to take him to another climate for the winter in the hope that he may escape these attacks and that he will outgrow it eventually. My question is this: What locality in the United States would probably be most favorable for him? Do you think the warm climate of Florida would be best in spite of its dampness, or would Arizona's drier climate with its cold nights be more likely to agree with this condition? Or are there even better places to go than these two? Any suggestions you have to offer will be very much appreciated.

——, Michigan.

ANSWER.—The symptoms given would indicate that the boy has a bronchial asthma, which is aggravated by infection of the upper respiratory tract. It is obvious, of course, that the colds are only contributory factors, even though very important. Basically the child has a tendency toward asthma; otherwise the spells would not occur. It is important, therefore, to find out to what the child is sensitive besides the fact that he contracts these colds. No mention is made of an examination from an allergic point of view and certainly the patient should have the benefit of a thorough examination followed by complete protein sensitization tests.

These tests should be carried out by the cutaneous or scratch method at first, followed by intradermal tests if necessary. All this should be done before a change of climate is considered.

On the other hand, if these tests have all been carried out and carried out thoroughly, preferably by one who is experienced in making such tests, and if no benefit has been derived from this examination and treatment based on the results of such an examination, the question of change of climate may well be taken up. There is no one locality which is favorable to all asthmatic patients; some do well in Colorado, some in California, some in Florida; and probably the greatest benefit is derived by those who visit Arizona.

It should be emphasized that change of climate should not be carried out until a thorough search for the cause of trouble has been instituted.

HYPERTENSION IN PREGNANCY

To the Editor:—Would you be kind enough to give your opinion of the following case: The woman is now 30 years of age. Five years ago she went through a pregnancy complicated by hypertension. The systolic pressure was from 180 to 210. The urine was consistently normal. There were no complaints and no edema. The eyegrounds were normal. Physical examination was negative. She delivered a normal baby at term. The baby subsequently died of a respiratory infection. The blood pressure was already elevated when the patient was first seen by the doctor. It remained elevated post partum. Chemical examination of the blood was reported negative. The Wassermann reaction was negative. Subsequently the blood pressure remained high. The urine always was normal. The patient is now two months pregnant. The blood pressure is 230 systolic, 110 diastolic. The urine is normal. There are no complaints and no other abnormalities. Would you allow such a pregnancy to continue? What treatment would you institute, if pregnancy is to continue? Kindly omit name.

M.D., New York.

ANSWER.—The patient apparently has an essential or primary hypertension. In view of her present blood pressure when only two months pregnant, the probabilities are that if the pregnancy is permitted to continue the blood pressure will slowly increase and in the last trimester albumin will begin to appear in the urine. The baby will probably die in utero as a result of placental infarction or abruptio placentae, perhaps even before it is viable.

While in rare instances such patients go to term, or near it, happily it is extremely unlikely that this one will give birth to a living child. If interruption of pregnancy is refused, the patient should be placed on a balanced general diet which is salt poor and advised to spend a great part of the day in bed. Later on in pregnancy she should remain in bed constantly and phenobarbital may be given as a sedative. Interruption would be indicated to spare the kidneys and heart at thirty-two to thirty-four weeks if the fetus should still be alive at that time.

TIN PANS AND FOOD POISONING

To the Editor:—We have recently had a rather widespread gastro-intestinal disturbance thought to be due to food served here at the institution. At this meal we served ground meats. Some of this meat was kept for twenty-four hours in aluminum containers and some of it was kept in tin pans under proper refrigeration, and it appeared that those served the meat that had been kept in the tin pans were the ones who had the intestinal disturbance. When the ground meat was prepared, pickles, vinegar and hard boiled eggs were mixed with the meat, after which this mixture was kept in the tin pans for about three hours, when it was used for sandwiches. Will you please advise whether you think that the use of the tin pans could have been responsible for the gastro-intestinal disturbance.

J. D. RILEY, M.D., State Sanatorium, Ark.

ANSWER.—This query is quite involved. In response to the direct query as to whether the tin pans would be responsible per se for the gastro-intestinal disturbances, the only answer possible is that this is most unlikely. In reconstructing such an outbreak from the meager information available, one would think that somewhere in the preparation or handling of the meat it became contaminated with certain bacteria, either through human or other animal sources. Moreover, whatever the contaminating bacterial organisms may have been, opportunity for them to grow and produce a bacterial poison in sufficient amounts to cause the gastro-intestinal disturbance mentioned must have been present.

This, of course, assumes that the clinical picture was that of the ordinary food poisoning outbreak, namely, nausea, vomiting, abdominal pain and diarrhea, appearing usually from three to six hours after consumption of the causative food, and that the chemical analysis of the food was entirely negative.

The clinical picture, if chemicals were involved, however, might have been similar but the incubation period would have been almost immediate. It is, indeed, unfortunate that no bacteriologic examination was made of the suspected food. In retrospect, therefore, this outbreak may have been due to the fact that the food was contaminated somewhere during its preparation, either through the source of a human carrier or from some other animal source, the bacterial organism being one of the group ordinarily associated with outbreaks of food poisoning in man.

Certainly the reference to tin pans could be entirely eliminated as a direct factor, for it is further assumed that the pans mentioned were properly cleansed before being used.

FRÖHLICH'S SYNDROME AND OBESITY

To the Editor:—A girl, aged 14 years, weighing 185 pounds (84 Kg.), was brought to me to help her reduce. Her blood pressure was 110 systolic, 80 diastolic, pulse 80 and her basal metabolic rate —35. The urine was normal, menstruation was normal, and she did not have headaches dizziness or tiredness. I put her on thyroid 2 grains (0.13 Gm.) a day and increased it to 6 grains (0.4 Gm.) a day and once a week gave her anterior pituitary 2 cc. for about four weeks. At the end of five months she lost 15 pounds (7 Kg.) and her basal metabolic rate was —16. The blood pressure was 120/80 but her pulse went up to 120 per minute. When medication was discontinued her weight again went up to 183 pounds (83 Kg.). The distribution of fat is that of Fröhlich's syndrome. Advice as to the treatment will be appreciated. Please omit name.

M.D., Ohio.

ANSWER.—The problem resolves itself into two distinct phases: the treatment of Fröhlich's syndrome proper and the treatment of the obesity.

The present status of the treatment of Fröhlich's syndrome is unsatisfactory. Thyroid and/or various pituitary preparations have been used with varying results. For a recent review of this subject see chapters VIII and XIV of Glandular Physiology and Therapy, published by the American Medical Association, Chicago, 1935. Fortunately most cases of Fröhlich's syndrome probably undergo spontaneous regression at adolescence. The simple correction of the obesity, by whatever means, has seemed almost as effective a treatment of Fröhlich's syndrome as any.

As regards the treatment of the obesity in this case, the low basal metabolic rates justify the use of thyroid. However, the amount of thyroid prescribed should be governed by the appearance of symptoms of overdose rather than by the desired rate of loss in weight. It is also well to consider the possibility that the basal metabolic rate of —16 (after intensive thyroid medication and at the time when both blood pressure and pulse rate were raised) may actually represent a normal or supernormal metabolic rate for this patient. A recalculation of that metabolism test on the basis of ideal weight rather than actual weight (active tissue plus much inert fat) would give a fairer estimate of the state of affairs.

Loss or gain in body weight is determined by the balance between the caloric expenditure in the form of muscular work

and heat and so on and the caloric intake in the form of food. The suggested treatment, therefore, is to adjust the thyroid medication in accordance with the principles outlined, and then prescribe a diet with a caloric value less than the energy expenditure under those conditions.

AMYOTONIA CONGENITA

To the Editor:—At present I have under my care a 5 weeks old female infant with amyotonia congenita. This child was apparently normal at birth but has rapidly developed the characteristic signs of this disease within the past ten days, so that at present there is atrophy of the left deltoid muscle, and the lower extremities are becoming involved. This is the third consecutive child born of the same parents within seven years. Each of the other two infants died of amyotonia. Two years ago the mother had one spontaneous abortion. The blood Wassermann reaction on both parents was negative. During this last pregnancy the mother received weekly injections of a derivative of physostigmine, and in the last ten days the baby was likewise injected with this drug without any resulting improvement. Both other babies were studied histopathologically, and a full report on the first case was published in the *American Journal of Diseases of Children* (**41**: 591 [March] 1931). In both other babies the blood calcium, blood phosphorus and blood cholesterol were elevated. There were also a terminal hyperemia and edema of the brain. Briefly the pathologic condition consisted of an absence of anterior horn cells of the cord, with a progressing degeneration of the few anterior horn cells left. I should like to know (1) whether there is any newly discovered treatment for this condition and (2) whether high voltage roentgen therapy over the spine will prove efficacious. Because of the rapidly fatal course of this disease, I should greatly appreciate a prompt reply. Kindly omit name.

M.D., New York.

ANSWER.—1. Hurwitz and Gerstle (Amyotonia Congenita with Familial Incidence, *Arch. Neurol. & Psychiat.* **33**:1317 [June] 1935) suggest the use of aminoacetic acid over long periods. Three months of treatment in their case did not change the neurologic status. Other drugs, such as ephedrine, physostigmine and its derivative are being used, also without encouraging results. In view of the paucity of the anterior horn cells and the atrophy of those present when seen at necropsy, any drug therapy would appear to be of doubtful value.

2. No reports are known of the effects of high voltage roentgen therapy.

DEATH FOLLOWING INTRAVENOUS IODIDE

To the Editor:—Is it advisable to give a patient having angina pectoris, with electrocardiogram tracings showing damage to the heart muscle, an intravenous injection of sodium iodide, 30 grains (2 Gm.)? This was done and within forty-eight hours the cardiac condition became worse, decompensation occurred and despite all efforts the patient died. Does the sodium iodide given in dosage as mentioned have an absorbent or solvent action on the scar tissue previously laid down by former attacks of probably minor occlusion of minor vessels? What is your opinion of the intravenous use of iodide for conditions other than syphilis? Please omit name.

M.D., California.

ANSWER.—As death is liable to occur at just this time after an attack of coronary thrombosis and in just this manner when iodide is not given, it is impossible to say that the iodide has been the cause of the fatality; however, intravenous iodide may cause pulmonary edema in some persons and hence may have been a contributory factor in the fatality. It should be definitely understood, however, that iodide is not indicated at this time. Iodide given intravenously may have alterative value in other conditions besides syphilis, but it is difficult to define these indications precisely. With quite a number of astute practitioners it is the practice to "give iodide when in doubt," and sometimes good results are obtained in this manner, but as iodides are so well absorbed from the gastro-intestinal tract there seems to be little reason for giving them by vein.

CONGENITAL MYATONIA

To the Editor:—I recently saw a 2 year old girl with a typical case of congenital myatonia (Oppenheim's disease). The standard textbooks give little information about the disease and I would appreciate your opinion as to the pathology, treatment and prognosis. Please omit name.

M.D., New York.

ANSWER.—Fairly adequate descriptions of amyotonia (myatonia) congenita are found in the newer textbooks of neurology and pediatrics. The article in Grinker's Neurology is particularly good. Many exhaustive articles have appeared in neurologic journals. The pathology is discussed at some length by R. R. Grinker (The Pathology of Amyotonia Congenita, *Arch. Neurol. & Psychiat.* **18**:982 [Dec.] 1927) and by E. S. Gurdjian (Myatonia Congenita, *ibid.* **24**:52 [July] 1930). Both articles are well illustrated and contain clinical and anatomic descriptions. The disease exists at birth. The chief feature is extreme hypotonia, so that the legs may actually be wrapped around the neck. The weakness is profound. The tendon reflexes are absent or very weak. The change in the nervous system consists of scarcity in the anterior horn cells. There is no inflammatory reaction. The striped muscle fibers are abnormally small. The smooth muscles are not involved. There is a tendency to gradual improvement, but some degree of hypotonia usually persists. No specific treatment is known. The disease often closely resembles the Werdnig-Hoffmann type of muscular atrophy. This disease does not exist at birth but develops during the first few years of life and is more severe and progressive, with early death. The alterations in the nervous system are more profound.

PERIPHERAL NEURITIS AND CHROME COMPOUNDS

To the Editor:—A young woman has developed a peripheral neuritis of both the upper and the lower extremities following an alleged mild head cold. One of her duties is to wash blueprints, as needed, an hour or so daily. The prints are soaked (in a well ventilated room) in potassium bichromate (1 drachm to 5 gallons), lifted automatically out of this solution to drain off, and then placed in a cold water bath and dried. Physical examination is essentially negative. She has a rather flushed face, congested throat and pyorrhea around a decayed tooth. Could this work be responsible for her condition?

M.D., Connecticut.

ANSWER.—Potassium bichromate as used in the trade specified is frequently the cause of "chrome holes" in the skin and chrome dermatitis; occasionally a perforated nasal septum may be encountered. Chrome vapors conceivably might lead to the acceleration of infectious processes about the gums and respiratory tract. However, the direct association of a peripheral neuritis with potassium bichromate in limited exposure is scarcely warranted. Occasionally workers become sensitized to chrome compounds, so that the quantity of damage resulting is far out of proportion to that expectable from trivial exposure. Sensitization to chrome is discussed by Adelaide R. Smith (Chrome Poisoning with Reference to Manifestations of Sensitization, THE JOURNAL, July 11, 1931, p. 95). In the case described, mention is made not only of skin lesions but also of asthma, nephritis, glycosuria, myositis and fever. These manifestations recurred on reexposure. "Occupation and Health," of the International Labor Office, specifies in discussing chromates: "In the case of the mouth, chromates may cause irritations, small yellowish ulcerations which heal slowly, and a type of pharyngitis regarded as characteristic." Further, the statement is made that "most experts admit that chromates exercise a local effect and that a general effect is scarcely likely." In the absence of a proved sensitization to chrome compounds, and in the absence of obvious local evidences of injury, it is doubtful whether the peripheral neuritis mentioned in the query can be traced to chrome as the cause.

URETHRORECTAL FISTULA

To the Editor:—A man, aged 23, has a chronic stricture of the urethra which because of neglect has resulted in being complicated with two fistulas. One is at the junction of the urethra and the scrotum; the other is inside the rectum. When urine is passed it comes out mostly through the rectum and the lower opening. There is some passed through the distal opening, with only a small amount coming through the urethral opening. I opened an abscess about two weeks ago, which resulted in the stricture above. What procedure would you recommend to close these openings? I am now using hydrogen peroxide injections. I have the stricture opened fairly well to and beyond the first opening, but there is still some discharge from this fistula. I have used other medicines but would prefer your advice in this matter.

M.D., Texas.

ANSWER.—Urethrorectal fistula is seldom caused by stricture of the urethra alone but usually results from an abscess in the prostate. The urethroperineal fistula is probably the result of a periurethral abscess, which in turn may have been secondary to stricture. Urethrorectal fistulas do not usually heal as a result of treatment of the urethra alone, and an open operation, dissecting the fistulous tract and freeing the urethra, is usually necessary. The chances for the anterior fistula to close following adequate dilation of the urethra and drainage are better although surgical urethrotomy may be necessary. Operation for urethral fistula, of course, is not possible unless the inflammation has subsided. This should be accomplished by various means, such as urethral lavage and instillations of such solutions as silver salts, potassium permanganate, and other antiseptics. Local applications of heat may also be of value. If the gonococcus is present, hyperpyrexia must also be considered.

After the anterior fistula has been treated and the urethral stricture dilated, urethroscopic examination may be possible to determine the relationship of the posterior fistula to the prostatic urethra. Local treatment, consisting of lavage and dilation, should be directed toward this area and, if the fistula does not close, a plastic operation may be indicated. Such opera-

tions, however, are not easy and often result in failure to close the fistula. If operation is undertaken, it would be advisable to institute preliminary suprapubic drainage in order to avoid the necessity of an inlying urethral catheter to keep the wound dry.

RADIUM TREATMENT OF CAVERNOUS ANGIOMA

To the Editor:—A baby, about 9 months old, was brought to me with a cavernous angioma about the size of a pigeon egg, situated exactly between the inner canthi of the eyes over the nasal bone, extending upward toward the glabella. Superimposed on this cavernous angioma is a naevus vasculosis. I have seen cases like it before, but never in this location. Usually I have found that they respond to heavily filtered distant radium treatment. Can radium be safely used in this location with the eyes covered with lead, and can my plaque, namely, a 10 mg. plaque, be regarded as strong enough? The child has already had a few doses with apparently no effect, the last dose being radium 10 mg., distance 5 mm. above the lesion, the radium superimposed on a leaden bridge which is 0.5 mm. thick, with a time exposure of three hours without effect on the birthmark. The lesion is so disfiguring to the child that something has to be done, and if my technic is faulty I wish I might have your opinion. Please omit name and initials.

M.D., Massachusetts.

ANSWER.—Generally speaking the treatment as outlined is good, though probably it does not afford sufficient irradiation. A better opinion or suggestions could be given if the doctor had given more details as to the exact size of the lesion, its elevation and also the size of the plaque (full strength?).

The average pigeon egg measures slightly more than 1 by 1½ inches. Assuming that the lesion is about 1½ inches in diameter and one-fourth inch in elevation and a full strength plaque is used, the screening is satisfactory, though 1 or 2 mm. of rubber or distance might be better. The plaque is not large enough to cover a lesion of such dimensions. It might be well to divide the surface of the lesion into approximately four areas and irradiate each of these for about two hours. Overlapping of the areas should be avoided.

The treatment should be repeated at intervals of approximately six weeks until about five treatments have been given. It is well then to wait four or five months and if further treatments are indicated they may be given then.

RÔLE OF PITUITARY IN LIVER FUNCTION

To the Editor:—The wife of one of the members of our staff is 58 years old. During the past month the stools have been gray, and though she has never developed frank jaundice, the skin and the sclerae have at times a sallow muddy appearance. There is no pain, abdominal tenderness or palpable evidence of tumor. There has been nausea but no vomiting. The blood sugar is consistently low, between 80 and 95. Even after dextrose, 5 per cent, intravenously, from 400 to 500 cc. twice or three times during the day, there is no sugar in the urine. She has always been a heavy consumer of sweets. Since the onset of this illness she has been troubled with uncontrollable generalized itching of the skin and mucous membranes, particularly in the vagina and the ear canals, which disappears when she is given large amounts of intravenous dextrose. There have been no signs of hives or allergic reaction. The blood counts and blood picture are normal. The icterus index is 14.6, the blood urea nitrogen 7.6. A malignant condition has been suspected but no evidence found. Apparently the liver is just not functioning. This might be considered a subacute hepatitis. Does the pituitary gland enter into liver function? Will you please give a recent bibliography on this subject? Please do not publish name.

M.D., West Virginia.

ANSWER.—Few references appear in the recent literature bearing directly on the control of liver function by the pituitary gland. However, a recent paper (Soskin, Samuel; Mirsky, I. A.; Zimmerman, L. M., and Crohn, Nathan: Influence of Hypophysectomy on Gluconeogenesis in the Normal and Depancreatized Dog, *Am. J. Physiol.* **114**:110 [Dec.] 1935) clearly shows that the hypophysis is at least one important factor in controlling the formation of blood sugar by the liver.

CALCIUM AT MENOPAUSE

To the Editor:—Is there any rational basis for the use of calcium in the treatment of symptoms occurring at the menopause? Please omit name.

M.D., New York.

ANSWER.—In the literature there are so few references to the therapeutic use of calcium for menopausal disturbances that it seems not to be considered of especial value in this respect.

Climacteric hypertension and menopausal bleeding from the uterus are two conditions in which calcium lactate or calcium gluconate might appear to be indicated. Climacteric hypertension usually responds fairly readily, however, to more familiar and simple methods of treatment. In the presence of menopausal bleeding, disturbance in calcium metabolism with prolonged clotting time of the blood is probably one of the least likely and most remote of the several recognized causative factors, whereas early cancer is so dangerous a possibility that it must first be rigidly sought for and excluded before one resorts to anything so uncertain in its indications and effects as calcium therapy for such bleeding.

Abraham Cantarow in his monograph on Calcium Metabolism and Calcium Therapy (Philadelphia, Lea & Febiger, 1931) makes no reference to the use of calcium in disturbances of the menopause.

INCUBATION OF MAGGOTS IN CORPSE

To the Editor:—Can you give me the length of time for the incubation of maggots in a dead (human) body, death having occurred during the recent warm weather? Also their relative rate of growth? The maggots in this case were from 1 to 1.5 cm. in length. I am working with the county coroner on this case and will be called on to testify as to the approximate time of death. If you do not have this information, I would appreciate it greatly if you could refer me to the proper source to obtain it.

H. H. HARRIS, M.D., Rockwell City, Iowa.

ANSWER.—The length of time for the development of maggots from ova on the dead human body is from twelve to twenty hours in warm weather. This time varies according to the degree of warmth, the surrounding moisture and the condition of the corpse. The maggot may reach its full-grown size, which is 1.5 cm. long, in between twenty and twenty-four hours after incubation at 85 C. in a dry bulb and at 55 C. in a wet bulb. Flies are likely to deposit ova on necrotic tissue, exudate, pus and blood. In the case stated, the length of the maggots is no criterion of the approximate time of death, since ova may be deposited early or late after death, depending on whether or not flies have access to the body. Textbooks on zoology dealing with the metamorphosis of the Diptera will be found helpful.

PREGNANCY IN SYPHILIS

To the Editor:—A married man, the father of one child, came under my observation three years ago about three days after the appearance of a chancre. The first Wassermann test was negative, but the one several days later was 4 plus. I administered about thirty intravenous and intramuscular injections. No secondary symptoms appeared. No further clinically demonstrable signs of syphilis appeared within these three years. Five Wassermann tests within this period were consistently negative. One blood Wassermann test of his wife two years ago was negative. The couple is anxious for another baby and they want my advice. I had previously warned them against the possibility of transmitting the disease to the offspring. Under the existing conditions what would be the proper advice to give? Please omit name.

M.D., Ohio.

ANSWER.—A spinal fluid Wassermann test should be made of the husband and one or more blood Wassermann tests of the wife. Of course, if a positive test is obtained in either, intensive treatment should be instituted and no pregnancy should be initiated until at least five years after repeated Wassermann tests have become negative. If the spinal fluid Wassermann test of the husband and the blood Wassermann test of the wife are negative, the couple may have another baby. However, in order to be on the safe side, the wife should have a full course of antisyphilitic treatment throughout the pregnancy but the doses should be smaller than normal. The suggestion concerning the prophylactic treatment during gestation should be made to the wife in the proper manner in order to avoid arousing an undesirable psychic effect.

COMPARISON OF TESTS FOR SYPHILIS

To the Editor:—How does the Wassermann test compare with modifications, such as the Kahn, the Kline and the Eagle? Kindly give them in the order of relative value. Please omit name.

M.D., Florida.

ANSWER.—The Kahn, Kline and Eagle tests are not modifications of the Wassermann test. These tests are not based on the principle of complement fixation but on the principle of precipitation. The relative value of various modifications of the Wassermann test in comparison with precipitation tests is apparent from the result of the recent evaluation study of tests for syphilis carried out by the United States Public Health Service with the cooperation of the American Society of Clinical Pathologists. The report of this study appeared in THE JOURNAL, June 8, 1935, page 2083. The results given in this report indicate that of the thirteen methods employed the Kahn standard test with serum and with spinal fluid was the most dependable and that the Kline test ranked next in dependability. Also, the results of these two precipitation tests were superior to any of the Wassermann methods employed in this evaluation study.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 29-July 1. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, March 2. Sec., Dr. W. W. Council, Juneau.

CALIFORNIA: *Reciprocity.* Los Angeles, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Washington, Jan. 11-12. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, Nov. 16-17. Sec., Dr. William M. Rowlett, P. O. Box 786, Tampa.

IOWA: Des Moines, Dec. 1-3. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, Dec. 8-9. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, Dec. 2-4. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, December. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MARYLAND: *Regular.* Baltimore, Dec. 8. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 17-19. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

NEBRASKA: Lincoln, Nov. 23-24. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Nov. 30. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OHIO: Columbus, Dec. 2-4. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, Dec. 9. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Nov. 21. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene. *Medical.* Portland, Jan. 5-7. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

PENNSYLVANIA: Philadelphia, January. Sec., Board of Medical Education and Licensure, Mr. James A. Newpher, Education Bldg., Harrisburg.

PUERTO RICO: San Juan, March 2. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

SOUTH DAKOTA: Pierre, Jan. 19-20. Dir., Division of Medical Licensure, Dr. B. A. Dyar, Pierre.

VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 9-13. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Madison, Jan. 12-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Feb. 9-11, May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOY AND SYPHILOLOGY: Philadelphia, June. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written* examination will be held simultaneously in different centers of the United States and Canada in December. *Practical* or *clinical* examination will be given in St. Louis in April. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Des Moines.

AMERICAN BOARD OF OPHTHALMOLOGY: Los Angeles, Jan. 23. *All applications for this examination must be filed before Dec. 1, and case reports must be submitted before Jan. 1.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Cleveland, Jan. 9. *Only applications received by the Secretary on Dec. 1 or before will be acted upon by the Board.* Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Baltimore, Nov. 17-18. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Mich.

AMERICAN BOARD OF PEDIATRICS: Cincinnati, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 29-30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester.

AMERICAN BOARD OF UROLOGY: Chicago, Dec. 4-6. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

West Virginia July Report

Dr. Arthur E. McClue, secretary, West Virginia Public Health Council, reports the oral and written examination held in Bluefield, July 13-15, 1936. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Thirty-four candidates were examined, all of whom passed. Six physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1936)	88.4
Loyola University School of Medicine		(1936)	85.9
Northwestern University Medical School		(1936)	85.3
Rush Medical College	(1934) 86.7, (1936) 86.8, 88.7, 89.4,		91.3
University of Louisville School of Medicine	(1934) 88.1,	(1935)	86.6
University of Maryland School of Medicine and College of Physicians and Surgeons		(1935)	86.3, 89.4
Harvard University Medical School		(1935)	87.8
Cornell University Medical College		(1935)	88.8
University of Cincinnati College of Medicine		(1935)	86.6
Western Reserve University School of Medicine		(1935)	89.1
Jefferson Medical College of Philadelphia		(1935)	87.4, 89.9
University of Pennsylvania School of Medicine		(1935)	88.4
Medical College of the State of South Carolina		(1933)	89.7
Medical College of Virginia		(1934)	86.5, 87, (1935) 84.6, 85.6, 86.1, 86.2, 87.2, 88.3, 89.6
University of Virginia Department of Medicine		(1934)	87, (1935) 86.4
University of Toronto Faculty of Medicine	(1926) 87.3,	(1935)	87.6
Deutsche Universität Medizinische Fakultät, Prag		(1934)*	83.6

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of Medicine	(1928),	(1929)	Georgia
University of Louisville School of Medicine		(1935)	Kentucky
University of Maryland School of Medicine and College of Physicians and Surgeons		(1933)	Maryland, Virginia
University of Pittsburgh School of Medicine		(1919)	Kentucky

* Verification of graduation in process.

Florida June Examination

Dr. William M. Rowlett, secretary, Florida State Board of Medical Examiners, reports the examination held in Jacksonville, June 15-16, 1936. One hundred and sixteen candidates were examined, 94 of whom passed and 22 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Med.	(1935) 75.3,	(1936)	81
Atlanta College of Physicians and Surgeons, Georgia		(1913)	77.2
Emory University School of Medicine		(1928)	83.9, (1933) 79, 79.7, 88.5, (1936) 76.6, 77, 77.6, 77.9, 81.7, 83.4
University of Georgia School of Medicine		(1934)	75.4, (1935) 86.9, (1936) 75, 78.6
Rush Medical College		(1929)	75.2, (1934) 86.4, (1936) 84.5
University of Illinois College of Medicine		(1934)	87.1
Indiana University School of Medicine	(1930) 82.9,	(1935)	82.7
Kansas City University of Physicians and Surgeons, Mo.		(1929)	78.6*
University of Louisville Medical Department		(1917)	90.7
University of Louisville School of Medicine		(1935)	77.3
Louisiana State University Medical Center		(1936)	75, 81.5
Tulane University of Louisiana School of Medicine		(1932)	84.1, (1933) 83.1, (1935) 75, 83.7, (1936) 76.9, 77.9, 79.3, 82.3, 82.5, 83, 83.3
College of Physicians and Surgeons of Baltimore		(1914)	75
Johns Hopkins University School of Medicine		(1901)	75, (1930) 84.7, (1932) 82.3, (1936) 82
Harvard University Medical School		(1923)	85.5, (1933) 82.4, (1935) 84.2, (1936) 87.8
Tufts College Medical School		(1917)	79.3
University of Minnesota Medical School		(1935)	78.4
Washington University School of Medicine		(1931)	80.1, (1936) 79.8
Albany Medical College		(1919)	77.2
Columbia Univ. College of Physicians and Surgeons		(1900)	80.7, (1928) 81.8
New York Homeopathic Med. Col. and Flower Hospital		(1934)	77.8
Syracuse University College of Medicine		(1921)	80.9
University of Buffalo School of Medicine		(1919)	78.6
Duke University School of Medicine	(1932) 75,	(1934)	80.9
Ohio-Miami Medical College		(1912)	84.2
Ohio State University College of Medicine		(1921)	77.9, (1935) 76.5
University of Cincinnati College of Medicine		(1935)	76.4, (1936)† 80.8
Western Reserve University School of Medicine		(1935)	75.5
Jefferson Medical College of Philadelphia		(1918)	81.7, (1923) 83.1, (1932) 87.3, (1935) 77.8
Temple University School of Medicine		(1935)	78.6
University of Pennsylvania School of Medicine		(1933)	83.2
Medical College of the State of South Carolina		(1936)	84.4
Meharry Medical College	(1935) 79.8, 80.2,	(1936)	75.5
Memphis Hospital Medical College		(1911)	80.2
University of Nashville Medical Department		(1904)	76.1
University of Tennessee College of Medicine		(1932)	79.4, 81.1, (1935) 77.9, 79.2, 81.3, (1936) 77.2, 78.9
Vanderbilt University School of Med.	(1932) 84.7,	(1935)	75
Baylor University College of Medicine		(1934)	78.3
University of Texas School of Medicine		(1935)	75
Medical College of Virginia	(1934) 77.1,	(1935)	75.3
University of Virginia Department of Medicine		(1936)	76.9
University of Toronto Faculty of Medicine	(1924) 81.5,	(1935)	83

School	FAILED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1935)	72.7
Atlanta Medical College		(1915)	73.9
Emory University School of Medicine		(1931)	61.4, (1932) 72.7, (1934) 70.8
Chicago College of Medicine and Surgery		(1911)	56.3
Jenner Medical College, Chicago		(1910)	63.5

University of Illinois College of Medicine	(1928)	71
Louisville and Hospital Medical College	(1908)	69.6
Tufts College Medical School	(1933)	72.1
Fordham University School of Medicine	(1913)	71.6
Long Island College Hospital	(1906) 69.6, (1917)	66.8
New York Homeopathic Med. Col. and Flower Hospital	(1933)	73.9
University of the City of New York Medical Dept.	(1895)	73
Miami Medical College, Ohio	(1901)	61.4
Meharry Medical College	(1935)	62.2
Medical College of Virginia	(1927)	72
University of Virginia Department of Medicine	(1925)	73.3
University of Toronto Faculty of Medicine	(1920)	73.9
Western University Faculty of Medicine, Canada	(1917)	71.9
Universidad de la Habana Facultad de Medicina y Farmacia	(1907)‡	62.2

* Repeated senior year at Emory University School of Medicine.
† This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.
‡ Verification of graduation in process.

Vermont June Examination

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports the written examination held in Burlington, June 24-26, 1936. The examination covered 12 subjects and included 90 questions. An average of 75 per cent was required to pass. Thirty candidates were examined, all of whom passed. The following schools were represented:

PASSED			
School		Year Grad.	Per Cent
Georgetown University School of Medicine		(1936)	85.1*
Harvard University Medical School		(1935)	86.2
Tufts College Medical School		(1935)	83.5
Creighton University School of Medicine		(1936)	79.2,* 86.1*
University of Vermont College of Medicine		(1935)	81,
83,* 87.9,* 91.2,	(1936) 81.3,* 83.1,* 83.3,* 83.5,* 84.5,* 84.7,* 85.6,* 86.3,* 86.4,* 87.3,* 87.3,* 87.4,* 87.4,* 88.6,* 88.9,* 90,* 90.1,* 90.3,* 90.6*		
McGill University Faculty of Medicine		(1934)	90
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1934)†	83.1

Nine physicians were licensed by endorsement from January 3 through August 7. The following schools were represented:

LICENSED BY ENDORSEMENT			
School		Year Grad.	Endorsement of
Baltimore Medical College		(1904)	Mass.
Harvard University Medical School		(1932)	Mass.
Tufts College Medical School	(1920) Massachusetts,	(1932)	N. B. M. Ex.
Albany Medical College		(1935)	New York
Jefferson Medical College of Philadelphia		(1934)	N. B. M. Ex.
University of Vermont College of Medicine		(1933)	N. B. M. Ex.
University of Virginia Department of Medicine		(1930)	New York
McGill University Faculty of Medicine		(1925)	Penna.

* License has not been issued.
† Verification of graduation in process.

Louisiana June Report

Dr. Roy B. Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written examination held in New Orleans, June 4-6, 1936. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. Ninety-seven candidates were examined, 96 of whom passed and 1 failed. Four physicians were licensed by reciprocity. The following schools were represented:

PASSED			
School		Year Grad.	Per Cent
Rush Medical College		(1934)	86.9
State University of Iowa College of Medicine		(1936)	86.7
University of Kansas School of Medicine		(1934)	83.5
Louisiana State University Medical Center		(1936)	84.5,*
84.7,* 84.7,* 85.1,* 86,* 86.1,* 86.2,* 86.3,* 86.4, 86.6,* 86.8,* 86.9,* 86.9,* 86.9,* 87.1,* 87.3,* 87.3, 87.8*			
Tulane University of Louisiana School of Medicine		(1935)	83.6,
(1936) 80.8, 81.1, 81.4, 81.8, 81.9, 81.9, 82, 82.2, 82.2, 82.4, 82.4, 82.6, 82.9, 82.9, 83, 83.1, 83.2, 83.3, 83.5, 83.5, 83.5, 83.6, 83.6, 83.8, 83.8, 83.9, 83.9, 84, 84.6, 84.7,† 84.7, 84.7, 84.7, 84.7, 84.8, 84.8, 84.9, 85, 85.2, 85.2, 85.2, 85.3, 85.6, 85.6, 85.6, 85.7, 85.8, 85.9, 85.9, 86, 86.1, 86.1, 86.2, 86.2, 86.2, 86.3, 86.4, 86.5, 86.5, 86.7, 86.8, 86.8, 86.9, 87, 87.1, 87.4, 87.9, 88, 88.4, 88.5, 88.6, 88.7			
University of Tennessee College of Medicine		(1925)	76.2
University of Texas School of Medicine		(1932)	86.8

FAILED			
School		Year Grad.	Per Cent
Memphis Hospital Medical College		(1911)	41

LICENSED BY RECIPROCITY			
School		Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1934)	Arkansas
University of Louisville School of Medicine		(1931)	Kentucky
Tulane University of Louisiana School of Medicine		(1932)	Mississippi
St. Louis University School of Medicine		(1929)	Missouri

* This applicant has received the M.B. degree and will receive the M.D. degree and Louisiana license on completion of internship.
† This applicant has been issued a temporary permit and will be issued a license on completion of U. S. citizenship.

Book Notices

Minor Surgery. By Frederick Christopher, S.B., M.D., F.A.C.S., Associate Professor of Surgery at the Northwestern University Medical School, Chicago. With a foreword by Allen B. Kanavel, M.D., F.A.C.S., Professor of Surgery at the Northwestern University Medical School. Third edition. Cloth. Price, $10. Pp. 1,030, with 709 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

This edition has been considerably amplified by the addition of a number of newer methods of treatment, most of which have been well established from their use by a number of surgeons. The opening chapters include a general discussion and treatment of wounds, infections, injuries and circulatory disturbances. Tumors, injuries, fractures, dislocations, infections and deformities of the various regions of the body are taken up systematically. The male and female genito-urinary organs and the anus and rectum are considered in separate chapters. Minor surgical technic and the duties of a surgical intern conclude the book. Illustrations are numerous and well chosen. They add materially to the value of the text. Numerous authorities for preferred treatment and modern points of view are given credit and in some instances brief excerpts are taken from current literature. A practical approach is made to the problems of minor surgery by frequently giving not only the author's preferred treatment but also widely used methods from leading clinics. It is explained by the author that what seems to be minor surgery at first may rapidly develop into major surgery even with the most expert early treatment. From this conception one must appreciate that the subjects included here are of much more than minor importance both to the patient and to the physician. In fact, it is in this highly diversified and borderline field, which strictly should not be called minor surgery, that experience is so necessary in the prevention of dangerous complications, which may require the most expert treatment or even complicated major surgery. The author offers those who meet surgical conditions which at first do not appear to be of a serious nature an opportunity to learn how such conditions may be best treated. Every hospital resident should read this book and every practitioner should profit through its study.

Plague: A Manual for Medical and Public Health Workers. By Wu Lien-Teh, M.A., M.D., Director Weishengshu National Quarantine Service, J. W. H. Chun, M.B., B.C., Senior Quarantine Officer, Shanghai, R. Pollitzer, M.D., Microbiologist, Shanghai Quarantine Station, and C. Y. Wu, M.B., B.S., Chief Technical Expert, Weishengshu National Quarantine Service. Cloth. Price, $4; 15s. Pp. 547, with 103 illustrations. Shanghai, China: Weishengshu National Quarantine Service, 1936.

It has remained for these workers in China to furnish probably the most comprehensive survey of plague in any language, certainly the most satisfactory in English. The work is a thoroughly modern treatise on the subject, mentioning even the focus of rodent plague that was discovered only in 1935 in Montana. The book, as might be expected, is particularly full on the history of the disease in China, although the authors reject the view, so often expressed, that the province of Yunnan is an endemic focus. A list of Chinese epidemics going as far back as 224 B. C. is given. Among pioneer workers are listed S. B. Grubbs and the late J. J. Kinyoun, both of the U. S. Public Health Service, the former for his ship ratproofing work and the latter for his work in California in 1900. The highly controversial question as to the discovery of the causative organism of plague is disposed of by crediting Kitasato with first having seen the organism now known as Pasteurella pestis and Yersin with first having secured it in pure culture. The authors agree with early workers as to the great value in the diagnosis of the bubonic type of plague in man that is derived from a careful study of the gross pathology of the disease.

The authors consider outbreaks of the pneumonic type of plague to have their origin in cases of the bubonic type in which lung lesions, secondary pneumonia, have developed but admit that not all the factors leading to the origin and spread of the pneumonic type are well understood and that a "pneumotropism" must be considered as a possibility. There are facts in connection with the history of pneumonic plague in the United States that furnish some supportive evidence for

the latter view. The opinion is expressed that, while serum therapy is not spectacularly successful, some benefit is derived from it. Bacteriophage therapy, so much written about a few years ago, is not considered of material value. In consideration of prophylactic measures, stress is laid on the importance of an educational campaign whenever antiplague procedures are necessary, even when the work is to be carried out among an ignorant population. Rat proofing as an antiplague measure is favorably regarded, and instructions in detail are given for its accomplishment. Bacterial viruses for rat destruction are not considered as important as chemical poisons. The difficulty of mass vaccination is considered and the measure is looked on with some favor, though the reader is warned that it is not to be expected to control an epidemic but rather to be used along with other and more directly effective measures. Under the head of measures against rural rodents, the statement is made with respect to the California ground squirrels that "the problem of the extermination of the pest has exercised the attention of the United States Health authorities for nearly thirty years and remains to be solved," a statement with which any one familiar with the problem will agree and one that probably is applicable to selvatic plague anywhere. The prophylaxis of the pneumonic type of the disease is regarded more hopefully than is usually the case. This is a subject on which the authors speak with final authority on account of their large experience with this type of plague. Their injunction is that those sick of pneumonic plague must be hospitalized early (during the first twenty-four hours of illness) and that contacts of the sick are to be isolated promptly. The importance of early isolation of the sick lies in the very low, or absent, infectiveness of the patient during this period. The book is one that every research worker in plague and every administrative authority dealing with the disease will find useful—almost indispensable.

Studies in Brucella Infections. Michigan State College of Agriculture and Applied Science, Agricultural Experimental Station, Section of Bacteriology, Technical Bulletin No. 149. Paper. Pp. 51. East Lansing, Michigan, 1936.

This bulletin contains five papers, on nonspecific agglutination in the Brucella group, the chemical examination of an avirulent strain of Brucella abortus, a study of Brucella abortus-infected tissues as immunizing agents against Brucella infection in the guinea-pig, a method for measuring the opsonocytophagic power of the blood of cattle for Brucella, and undulant fever: specific treatment with brucellin and procedures for diagnosis. These reports record the continuation of the splendid studies on brucellosis made by Huddleson and his collaborators at Michigan State College.

The first study reveals that partially or completely dissociated strains of Brucella are unreliable as antigens for the agglutination test. There are long intervals during which dissociated strains are heat stable. The thermo-agglutination test serves only as an approximate means of detecting rough and dissociated variants of Brucella. It cannot be depended on entirely as a routine test for the selection of normal cultures for use as antigens in the agglutination test.

The second paper describes the occurrence and properties of various cellular fractions of an avirulent strain of Brucella abortus, compared with the composition of normally virulent strains. The principal differences were found to consist in serologic dissimilarities between the protein fractions and in the absence in the nonpathogenic strain of a conjugated protein constituent which is largely responsible for the toxicity and serologic properties of the virulent strain.

The third study was made to determine the value of Brucella abortus infected tissue as an immunizing agent against Brucella infection in the guinea-pig. The spleens of infected guinea-pigs and infective fetal exudate from fetal membranes treated to render them noninfective were studied. The results showed conclusively that when infected guinea-pig spleen and exudate from the fetal membranes of an aborted bovine fetus are treated with either chloroform or solution of formaldehyde to render them noninfective they are without value as immunizing agents against experimental Brucella abortus infection in the guinea-pig.

The fourth report describes a method for determining the degree of immunity in cattle against Brucella infection. The method involves the measuring of the phagocytic power of the polymorphonuclear leukocytes in an opsonocytophagic system.

The fifth paper describes the results obtained in the treatment of 100 cases of brucellosis (undulant fever) in human beings with brucellin, a fraction of Brucella cells obtained by growing the organisms in peptic digest liver broth. The bacteria-free active agent is recovered from the liver broth filtrate. Of the 100 patients who were treated with brucellin, twenty-three were under 11 years of age. A small number were laboratory workers who contracted the disease in line of duty. From information obtained by physicians in charge of the nonlaboratory cases, there was convincing evidence that more than 75 per cent contracted the disease through the ingestion of raw infective dairy products. In the cases of children and infants there was no evidence which would indicate that the source of infection was any other than raw infective milk. There were twenty-nine cases in which agglutinins could not be demonstrated in the blood in a dilution of 1:20 or above. Eighteen of these, or 62 per cent, were in children under 11 years of age. The diagnosis in these cases was based on a positive allergic skin test and opsonocytophagic blood test or a positive blood culture. The authors believe that the further use of these diagnostic methods, in addition to the agglutination test, will dispel the long held assumption that children are not as susceptible to the disease as are adults. The intradermal testing was done with a standardized Brucella nucleoprotein suspensoid known as "Brucin." The authors have outlined in detail the procedure to be followed in using brucellin as a therapeutic agent. Of the seventy cases in which the duration of symptoms was less than 121 days before treatment with brucellin, recovery occurred in fifty-one (73 per cent) within twenty-two days after the first injection, and in eighteen (26.1 per cent) after the twenty-second day period; one (1.4 per cent) failed to respond to treatment. Of the thirty cases in which the duration of symptoms was more than 120 days before treatment, recovery occurred in seventeen (56.6 per cent) within twenty-two days after the first injection and in ten (33⅓ per cent) after the twenty-two day period; two terminated fatally and one failed to respond to treatment. If the six cases that failed to respond to treatment and the two in which death occurred are excluded, it was found that the average duration of illness per case before treatment was 159.3 days. The average duration of illness per case after treatment was begun was 18.2 days.

An Epitome of Obstetrical Diagnosis and Treatment in General Practice. By Bethel Solomons, M.D., F.R.C.P.I., F.C.O.G., Gynæcologist Dr. Steevens' Hospital, Dublin. Volumes I and II. Second edition. Cloth. Price, 2s. 6d., per volume. Pp. 1-64; 65-140. London: John Bale, Sons & Danielsson, Ltd., 1936.

The amount of useful information which the author has included in these two booklets is amazing. The books were written for general practitioners; hence all the advice given is of a practical nature. The first volume is divided into two parts, the first of which deals with normal pregnancy, normal labor and the uncomplicated puerperium. The second part is concerned with abnormal pregnancy and includes the toxemias, uterine hemorrhages, ectopic pregnancy, diseases of the ovum and diseases in pregnancy. In the second volume the author takes up abnormal labor, the abnormal puerperium and obstetric operations. In discussing the conduct of labor, the author says "There is no need to wear masks or gowns, but the doctor should not blow or cough into the vagina." Since the use of a mask entails no trouble and but little expense, it should be used during every delivery, because droplets from the mouth may reach the vulva and vagina not only during blowing and coughing but also while the physician is talking. The author favors the use of episiotomy where indicated and its repair with large, through and through silkworm sutures. In the treatment of eclampsia, Solomons favors the use of purgatives, colonic lavage and gastric lavage, procedures that have largely been given up in this country. For the treatment of accidental hemorrhage (abruptio placentae) the author recommends puncture of the membranes, solution of posterior pituitary and treatment of collapse, especially with saline solution. He believes that the best therapy for placenta praevia is version, regardless of whether the cervix is completely dilated or not, but he

properly emphasizes that after the version the patient should be left to deliver herself. Cesarean section is reserved for some cases of placenta praevia, the classic operation being the one of choice. The sections dealing with the conduct of labor are particularly commendable. In the treatment of postpartum hemorrhage, Solomons advocates the use of a hot intra-uterine douche, but this procedure has so many disadvantages that it may well be omitted from the treatment of postpartum bleeding. Chloroform is recommended, although the author definitely points out its limitations. The author's vast experience as an obstetrician and gynecologist is evident by the sound advice given in every chapter. The booklets will prove valuable not only to general practitioners but also to medical students, because they completely summarize the actual practice of obstetrics.

Clinical Heart Disease. By Samuel A. Levine, M.D., F.A.C.P., Assistant Professor of Medicine, Harvard Medical School. Cloth. Price, $5.50. Pp. 445, with 97 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

One who is familiar with Dr. Levine's numerous contributions to the subject of heart disease has no difficulty in recognizing that much in this volume is virtually what he has published elsewhere. The book, however, is not merely a random collection of reprints. The old material has been worked over and collected into what may be viewed as a collection of essays, each with a direct bearing on the topic of the clinical features of heart disease. The chapters or essays are arranged in a somewhat casual order yet in such a way that each chapter or group of chapters contains a fairly complete presentation of one topic—like a short story. Thus there are three consecutive chapters devoted to acute rheumatism and rheumatic heart disease; one chapter of some fifty pages is on angina pectoris and coronary thrombosis; fourteen pages are given to acute and subacute endocarditis, thirty to the treatment of congestive heart failure. The longest chapter, more than 100 pages, is the one on clinical electrocardiography. There are two short but interesting chapters, one on the clinical significance of the systolic murmur, the other on acute cardiovascular emergencies. The book is not suited to the needs of the undergraduate, whose guide should be a text more comprehensive than this, with more consideration of pathologic anatomy, etiology, physiology and historical background. Nor is it for the research worker. The author's purpose, however, was not to meet these needs. He distinctly states that his aim was to write a book that might help the general practitioner solve some of the difficult problems presented by heart disease. This purpose has been well fulfilled. It is a pleasure to note that emphasis is put on the frequent possibility of reaching a diagnosis by history and study of symptoms and signs without the appeal to the laboratory or the instrument of precision. It is also a pleasure to state that the author's views seem in general to be sound. If occasionally he is a little nonorthodox, he makes himself responsible. This preservation of individuality is in no sense offensive; it is, rather, refreshing.

Aural Therapy in Relation to Deafness. By Professor D. F. Fraser-Harris, M.D., D.Sc., B.Sc. With a foreword by Sir James Purves-Stewart, K.C.M.G., C.B., M.D. Second edition. Cloth. Price, 7s. 6d. Pp. 45, with 10 illustrations. London: Sterling Medical Publishing Co., [n. d.].

This short treatise, with a foreword by Sir James Purves-Stewart and an introduction "by an unnamed professor on the faculty of medicine at an English University," devotes a chapter to varieties of deafness, in which the author speaks of congenital and acquired, as well as deafness secondary to generalized infections such as measles, scarlet fever, "rheumatism" and some "forms of catarrh of the nose and throat." The second chapter deals with causes of deafness and also briefly discusses the anatomy of the ear. Among the causes of impaired hearing mentioned are cerumen, injury to the drum membrane, and obstruction of the eustachian tube. A rather striking statement is that "another form of deafness is due to otosclerosis, which is a rheumatic condition, for just as people with rheumatism find their knuckles swell, so the bones of the head may swell and be distorted." In view of all the research that has been done on the etiology of otosclerosis, this theory certainly appeals to one as rather strange. In the third chapter the diagnosis of deafness is discussed. The apparatus used is the audiograph, which is similar in many ways to the various types of audiometers used in this country. A number of graphs are shown and one type of deafness is termed "neurotinnital" deafness, with "otosclerosis" in parenthesis. The fourth chapter deals with treatment by hearing aids, and the author emphasizes the fact that the aids should be prescribed to suit the individual requirements of the patients, depending on the type of hearing impairment present. The next chapter describes the treatment of certain forms of impaired hearing by means of a "thermocatheter," used, however, in the external auditory nerve canal. The principle is that an oil with a low melting point is placed in the small cup of the instrument called thermocatheter, the inside of which can be warmed by an electric current. "When the contents of the cup have reached the proper temperature the fatty ointment begins to flow out of the little cup down the meatus to the drum-head. Here it does its work without waiting to be absorbed first into the blood and then carried round the circulation in order to reach the ear." The author states that in cases of senile deafness and "of deafness associated with rheumatic and gouty conditions, this form of direct medication is very helpful and should be persisted in for some length of time." In the sixth and final chapter the author states that, by the use of audiometric measurements, changes in hearing are detected which were overlooked when only tuning forks were used. This brochure is unique in some of the points it emphasizes; also in the use of certain terms, such as "neurotinnital" deafness, and in its description of otosclerosis as a rheumatic condition.

L'année électro-radiologique. Par Morel-Kahn, avec la collaboration de MM. G. Appell-Duclaux et al. Deuxième année (1934-1935). Paper. Price, 40 francs. Pp. 266, with 38 illustrations. Paris: Masson & Cie, 1936.

This is an annual report divided into three parts, roentgen diagnosis, therapeutic radiology and electrotherapy. The subjects considered in each chapter contain a clinical discussion and a special description of the technics of roentgen examination, which are well illustrated, and the treatment with roentgen, radium or electric modalities. The subjects of the first part are pneumoconiosis, tuberculosis of the granulies froides, diseases of the pharyngolarynx, diverticulitis of the gastrointestinal tract, amebic colitis, diseases of the pancreas, vasography of blood and lymph vessels, diseases of the vertebrae and tumors of the hypophysis. The text is clear, and the characteristic conditions are italicized. The chapter on radiation therapy includes the application to disturbances of the sympathetic system, which are made either centrally over the vertebral column or regionally or cutaneously over the puncta dolorosa. Total body irradiations are next discussed. They are used in diseases of the blood, of the reticulo-endothelial system and in general incretory dysfunctions. The technic and effects of irradiation in permanent and paroxysmal hypertension, in the anginas and in arteriosclerosis of the extremities are given. The treatment of secondary glandular carcinoma is the most difficult problem in the treatment of cancer. Prophylaxis is discussed from surgical and radiologic standpoints. The best treatment appears to be a combination of surgery, radium and roentgen rays. A description of radium therapy in cutaneous angiomas follows. Finally the researches on artificial radioactivity are reported. The third chapter considers the dangers of physical therapy, including irradiations with light rays and electric currents. Next a discussion of fever therapy is given. An interesting article is assigned to the treatment of benign uterine hemorrhages caused by myomas which may be successfully treated with radium, roentgen rays or electrolysis with copper or silver. Submucous polypi are destroyed by electrocoagulation. Functional hemorrhages indicate interstitial electrolysis and diathermy of the hypophysis. A discussion of the treatment of diffuse peritonitis recommends evacuation of the purulent material and direct exposure to ultraviolet rays. The treatment of injuries by light rays, as sun and heat, concludes the review. An annex reports the scientific proceedings of the national and international congresses of radiology held during 1934-1935. The annual is a valuable contribution. It has a recommendable advantage by reporting only those investigations in which original and good work has been done.

Your Breath and Your Health. By Louis M. Pearlman, M.D. Cloth. Price, $1. Pp. 128, with 8 illustrations. New York: Academy Publishing Company, 1936.

After an introduction by Barnet Joseph and a preface by the author, this little book is divided into three parts. The first is a physiologic survey of the sense of smell, metabolism, respiration and the blood circulation. The second part deals with the local causes of bad breath, particularly as regards the mouth, teeth, tonsils, sinuses, nose and ear infections. The third portion concerns itself with the systemic or constitutional causes of bad breath. This includes diseases of metabolism, infections and neuroses. Foul breath, or "fetor ex ore" as it is known medically, is a subject that well warrants attention. The public mind has been aroused by advertisements of certain well known preparations to be used as mouth washes and gargles, in the effort to remove the so-called halitosis. Many people believe that bad breath is due to some disturbance of the stomach. Otologists have, of course, known for a long time that conditions in and about the mouth and throat are most common causes of this disagreeable condition, and particularly the caseous plugs which form in the tonsil crypts. This little book is evidently intended for the layman and as such should prove exceedingly enlightening and lead many to seek medical attention to relieve foul breath. The work is systematically arranged and the illustrations are simple and easily understood.

Die Tuberkulose-Therapie des praktischen Arztes mit diagnostischen Bemerkungen. Von Prof. Dr. Kurt Klare, ärztl. Direktor der Prinzregent-Luitpold-Kinderheilstätte Scheidegg, und Dr. Hans Heinrich Knüsli, Chefarzt der Heilstätte Harzgerode. Ninth and tenth edition. Paper. Price, 8 marks. Pp. 111, with 41 illustrations. Leipzig: Curt Kabitzsch, 1936.

This book attempts to give to the clinician a short survey of the facts necessary for understanding the distribution, course, prophylaxis, diagnosis and treatment of tuberculosis. The authors, both working in large tuberculosis sanatoriums, do not enter deeply into the theories and the manifold problems of the disease but concentrate strictly on that which is necessary for practical work. In the chapter on prophylaxis and general treatment the social questions and the special conditions in Germany with her well organized tuberculose "fuersorge" system are mainly referred to. The results of the tuberculin tests, blood picture, sedimentation test and sputum examination are evaluated and the general treatment, as well as chemotherapy, and the problems of nutrition are discussed. Therapeutic measures for fever, cough and pulmonary hemorrhage are given. Much space is devoted to the indications and descriptions of surgical procedures, especially pneumothorax, the excellent results of which are emphasized by instructive illustrations. The indications for isolation of the patient from the family and for hospitalization also are stated. In pregnancy the authors feel that artificial interruption is necessary only on rare occasions. A special chapter deals with tuberculosis in childhood, where hereditary and constitutional factors are greatly stressed, and finishes with a short survey of the extrapulmonary forms of childhood tuberculosis. The general practitioner may get some quick information from this book, but little of value is presented to the physician familiar with any standard textbook on the subject.

Annual Report for the Year 1935, Central Narcotics Intelligence Bureau, Egyptian Government. Paper. Price, P. T. 10. Pp. 164, with illustrations. Bulâq, Cairo: Govt. Press, 1936.

This is an exhaustive report on the activities of the Central Narcotics Intelligence Bureau of the Egyptian government for the year 1935. Smuggling, trafficking, seizures, prosecutions and judgments, narcotic addiction, adulteration of narcotic drugs, the social effects of narcotic addiction, and legislation in Egypt and other countries are discussed, and elaborate tables are given on practically all the important aspects of the narcotic problem. Hashish seems to be largely used by the drug addicts of Egypt. Cocaine and the derivatives of opium other than diacetylmorphine apparently play a minor part. Traffic seems to be carried on according to usual methods, such as through concealment in the soles of shoes, in the interior of canes, and between the false walls of containers of various kinds, but the reported case in which opium was concealed in the gullets of birds is probably unique. If the data given in this report are accepted at face value, it may be assumed that narcotic drug addiction is on the wane in Egypt, but even so there remains plenty to do and the problem of treatment and cure of narcotic addicts is as yet unsolved. The director of the bureau recommends that the Egyptian government send a mission of carefully selected doctors to the United States to study methods of treatment prevailing in this country. His idea as to the basic method to be pursued in suppressing illicit traffic, as stated at Geneva in May 1935, is set forth in the report:

> As I have said before, important narcotic seizures do not fall into one's lap like ripe plums, nor is information to be had for nothing from Sunday school teachers and other honest folk.
>
> To fight the illicit traffic good information must be obtained from the inside and must be paid for, while anticontraband services must be well funded, well paid and well rewarded.

Of this record and report the Central Narcotics Intelligence Bureau of Egypt may well be proud.

The Practitioners Library of Medicine and Surgery. Volume X: Dermatology and Syphilology. Supervising Editor: George Blumer, M.A., M.D., David P. Smith Clinical Professor of Medicine, Yale University School of Medicine. Associate Editor: C. Guy Lane, M.D., Instructor in Dermatology and Syphilology, Harvard Medical School. Cloth. Price, $10. Pp. 1,043, with illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

In this volume thirteen eminent dermatologists collaborate to present a complete textbook of dermatology and syphilology. The opening chapter is a general discussion of common conditions affecting the skin, as well as general methods of diagnosis and treatment. Then follow infections of the skin, various forms of dermatitis, tumors, toxic dermatoses, other dermatoses, abnormalities, diseases of the nails and hair and of the lips and mucous membranes, pigmentary disturbances, endocrine manifestations, neuroses and syphilis. The section on syphilis, by Dr. Joseph Earle Moore, is essentially a condensation of the more extensive volume on the subject made available independently. There are hundreds of pictures such as are necessary in any textbook of dermatology, and a good index to complete the volume. Each of the chapters is supplemented by a brief bibliography. The book is a commendable volume and fits well into the system of which it is a part.

Les atrophies gastriques dans les anémies idiopathiques et les métanémies. Par Robert Lehmann. Paper. Pp. 119, with illustrations. Paris: Librairie E. Le François, 1936.

Lehmann has studied the gastroscopic appearance of the stomach by the Schindler technic in nineteen patients and correlated his observations with the radiologic, clinical and hematologic data in each case. In four cases of pernicious anemia he found "zonal" atrophic gastritis associated with hunterian glossitis and total gastric achylia. In one instance he observed the simultaneous regression of the gastritis and glossitis with liver therapy. In five cases of hypochromic anemia no atrophy and "zonal" atrophy of the stomach were found once each and diffuse atrophy three times. One of these patients was reexamined after iron therapy and showed regression of the atrophy. Three of four patients with aplastic and pseudo-aplastic anemia showed diffuse atrophy. A patient without anemia but with zonal atrophy reexamined after iron therapy showed definite improvement in the appearance of the mucous membrane, and another patient with macrocytosis but no anemia showed a disappearance of diffuse atrophy following liver therapy. Lehmann's conclusions are rather more definite than justified by his limited number of observations. His belief that "zonal" atrophy responds to liver therapy and diffuse atrophy to iron therapy should, however, be provocative of further studies.

Illustrious Contributors to Public Health, Being the Names Carved on the New Building to House the Departments of Health, Hospitals and Sanitation, and the Office of the Chief Medical Examiner. A Souvenir Prepared for the Dedication Exercises on Tuesday, November 26, 1935. By Charles Frederick Bolduan, M.D., Department of Health, City of New York. Cloth. Pp. 33, with 28 illustrations. Privately printed. New York: The Author, 1936.

This book was prepared as a souvenir for the dedication of the new building to be devoted to public health in New York City. On the various façades of the building the names of great contributors to medicine have been carved. The purpose of the souvenir booklet is to provide thumb-nail biographic sketches of those whose names have merited this honor. There are also some excellent photographs of these great contributors to the advancement of public health.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Typhoid Fever: Liability of Municipality.—Ogden City owns and operates a water supply system, including sources of supply, by means of which it supplies water to its inhabitants. A major portion of the water is obtained from artesian wells. When necessary, however, additional water is obtained from a canyon stream known as Wheeler Creek. In 1928 the state sanitary engineer reported that the latter source of supply would be "subject to human contamination" and recommended that the water be chlorinated. The city purchased a chlorinator and contracted for the erection of a building to house it. The chlorinator was not used, however, until after July 11, 1929. In the meantime the city continued to use water from Wheeler Creek. During the latter part of June and the early part of July 1929 fifteen known cases of typhoid fever developed in the city. In the present proceedings, the legal representatives of two of the typhoid patients who died sued the city alleging that the deaths were caused by typhoid fever contracted through drinking contaminated water negligently furnished by the city. From a judgment in favor of the city, the plaintiffs appealed to the Supreme Court of Utah.

According to the evidence, test samples of water from Wheeler Creek, taken during the summer of 1928 and on July 1, 1929, showed the presence of coli bacilli. A test sample taken from the city mains on June 15, 1929, was negative for coli bacilli but another sample taken July 14, 1929, was positive. Expert witnesses testified that the presence of coli bacilli in the water indicated contamination with either human or animal fecal matter and that their presence constituted a warning that typhoid germs might also be present. Water so contaminated is regarded as unfit for human consumption. Expert witnesses for the plaintiffs testified that the water supply was probably the source of the typhoid infection. On behalf of the city, it was shown that five of the persons who contracted typhoid fever had eaten at a certain restaurant, a waitress in which later had developed typhoid fever, and that eight others had frequented another place which was also frequented by a typhoid carrier. It was shown, furthermore, that a number of summer residents at a resort at the mouth of Wheeler Canyon were supplied with water from Wheeler Creek in June and July 1929 and that none was known to have been ill. Expert witnesses for the city excluded the city water as a probable source of infection, basing their opinions, in part, on the fact that thirteen of the persons contracting the disease had been in contact with other possible sources of infection. They pointed to the fact, too, that only a comparatively small number of cases developed among the 40,000 people using the city water and that the percentage of mortality was comparatively high. In epidemics attributed to contaminated water, they testified, the numbers of cases are usually greater and the percentage of mortality is low on account of the dilution of the bacteria in the larger supply of water. Where there is "direct infection," however, the masses of typhoid bacteria are greater, resulting in higher mortality.

In cases of this kind, said the court, involving infection by germs of microscopic size, it is frequently impossible to establish by definite proof the source of infection. The plaintiffs by circumstantial evidence attempted to prove that the illness was caused by drinking the city water, which in 1928 and in July 1929 was found to be polluted by coli bacilli. There was no direct evidence that it was so contaminated early in June when the two inhabitants involved in this case contracted the disease. There was no showing of typhoid germs in the water at any time. If all other probable sources of the infection are eliminated, the court said, a reasonable inference might be drawn that the water caused the illness. The city attempted to show by circumstantial evidence that there were other probable sources of infection. Neither party was able to show any preexisting typhoid case from which the germs might have come. The mere fact that the city water carried coli bacilli at the time the disease was contracted, if that had been proved, would not necessarily, without considering other facts, be proof that the typhoid germs which caused the disease came from the water. At most, the evidence of the presence of coli bacilli was strongly suspicious. The owner and manager of the summer hotel, whose guests were furnished water directly from Wheeler Creek at about the same point as the city's intake, and the city health commissioner, whose information was based on the records in his office, were properly permitted to testify that no sickness had occurred among approximately 100 guests at the hotel during the summer season of 1929. These witnesses were competent. Any limitation as to their knowledge would affect only the weight of their testimony. Since the presence of typhoid germs in the stream was not shown, evidence that none of the guests of the summer hotel who drank the raw water became ill tended to prove, although not conclusively, that the water did not contain typhoid germs.

The case, in the opinion of the court, was properly submitted to the jury, and after reading the entire record the court concluded that the case was fairly tried and that the jury was adequately instructed as to the law. The judgment of the trial court in favor of the city was therefore affirmed.—*Stoker v. Ogden City: McFarland v. Same (Utah), 54 P. (2d) 849.*

Criminal Abortion: Civil Liability of Physician Who Performs an Illegal Abortion.—On grounds of public policy, said the Supreme Court of Oklahoma, a woman may not recover damages from a man who induces her to submit to an operation which produces an abortion where she is of age and voluntarily submits to the operation. In arriving at this conclusion, the court followed the reasoning of the Court of Appeals of the District of Columbia in *Hunter* v. *Wheate*, 53 App. D. C. 206, 289 F. 604, 31 A. L. R. 980, a case in which a woman sued a physician for the negligent performance of an abortion. In that case the court said:

> It has long been the law that, where an action is founded upon an unlawful contract, the court will not interfere to relieve either of the parties thereto in an action against the other from the results thereof. . . .
>
> This rule applies, whether the act is performed in the execution of a contract or not. In other words, it applies to transactions as well as to contracts, and hence the suggestion of appellee that the recovery here was upon the second count in the declaration as for a tort, regardless of the contract, is of no avail. If the act out of which the cause of action arises is immoral or illegal, the courts will not grant relief.

So in the present case the Supreme Court of Oklahoma held that where parties to an immoral or illegal transaction are in pari delicto with each other, each is estopped, as to the other, to take advantage of his own moral turpitude, illegal act or criminal conduct for the purpose of recovering damages for injury sustained as a consequence of their joint wrongdoing.—*Bowlan v. Lunsford (Okla.), 54 P. (2d) 666.*

Society Proceedings

COMING MEETINGS

American Society of Tropical Medicine, Baltimore, November 18-20. Dr. N. Paul Hudson, Department of Bacteriology, Ohio State University, Columbus, Ohio, Secretary.

National Society for the Prevention of Blindness, Columbus, Ohio, Dec. 3-5. Mr. Lewis H. Carris, 50 West 50th St., New York, Managing Director.

Radiological Society of North America, Cincinnati, Nov. 30-Dec. 4. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, N. Y., Secretary.

Society for the Study of Asthma and Allied Conditions, New York. Dec. 5. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.

Society of American Bacteriologists, Indianapolis, Dec. 28-30. Dr. I. L. Baldwin, College of Agriculture, University of Wisconsin, Madison, Wis., Secretary.

Southern Medical Association, Baltimore, November 17-20. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, Edgewater Park, Miss., Dec. 15-17. Dr. E. Alton Ochsner, 1430 Tulane Ave., New Orleans, Secretary.

Southwestern Medical Association, El Paso, Texas, Nov. 19-21. Dr. Orville E. Egbert, 116 Mills Street, El Paso, Secretary.

Texas Ophthalmological and Oto-Laryngological Society, Fort Worth, Dec. 4-5. Dr. Kelly Cox, 1719 Pacific Ave., Dallas, Secretary.

Western Surgical Association, Kansas City, Mo., Dec. 11-12. Dr. A. H. Montgomery, 122 S. Michigan Blvd., Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Requests as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

6: 93-124 (Sept.) 1936

Next Achievement in Public Health. T. Parran Jr., Washington, D. C. —p. 93.
Human Larynx. F. E. Lejeune, New Orleans.—p. 95.
Modern Management of Organic Lesions of Colon and Rectum. F. W. Rankin, Lexington, Ky.—p. 98.
Inguinal Hernia. R. W. Waldrop, Bessemer.—p. 104.

American Journal of Diseases of Children, Chicago

52: 513-772 (Sept.) 1936

Stone in Urinary Tract in Children: Critical Study of Twenty-One Cases. H. L. Kretschmer, Chicago.—p. 513.
Insensible Perspiration in Children: I. Experimental Procedure and Influence of Certain Factors. G. J. Ginandes and Anne Topper, New York.—p. 528.
*Sensitivity to Tuberculin at Different Age Periods. C. A. Stewart and R. Dyson, Minneapolis.—p. 552.
Disturbance of Gastro-Intestinal Innervation in Poliomyelitis. J. A. Toomey, Cleveland.—p. 559.
Extent and Nature of Decline of Tuberculous Infection in Children: Analysis of Data Concerning 4,982 Children Tested with Old Tuberculin During Years from 1926 to 1934 Inclusive. P. W. Beaven, Rochester, N. Y.—p. 565.
*Studies in Whooping Cough: Diagnosis and Immunization. Leila Daughtry-Denmark, Atlanta, Ga.—p. 587.
Management of Retarded Child. R. L. Jenkins, Chicago.—p. 599.
Otogenic Suppurative Parotitis in Children: Report of Five Cases. J. M. Adams, Minneapolis.—p. 608.
Erythrocytes and Hemoglobin of Blood in Infancy and in Childhood: I. Size and Hemoglobin Content of Erythrocytes in Nutritional Anemia. G. M. Guest and Estelle W. Brown, Cincinnati.—p. 616.

Sensitivity to Tuberculin at Different Age Periods.—According to Stewart and Dyson, Mantoux tests with old tuberculin and purified protein derivative in doses of unequal potency agree in showing that, as a rule, children are more sensitive to tuberculoprotein than adults and that this difference between the two age groups is due to the occurrence among adults of a disproportionately large percentage of patients with relatively small areas of reaction to tuberculin. The suggestion is offered that the difference in allergy observed between the two age groups is the product of a general tendency for sensitiveness to tuberculin to diminish slowly as the postinfection time elapses. The sensitiveness to tuberculoprotein induced in the tissues by tuberculous infection is an extremely variable and moderately unstable immunologic change.

Studies in Whooping Cough.—Hematologic studies by Daughtry-Denmark indicate that, with a severe cough, a marked increase in the number of leukocytes with more than 60 per cent lymphocytes indicates whooping cough. However, the absence of such a blood picture by no means excludes the disease; for, although it is not a well known fact, normal leukocyte and differential counts do not disprove the presence of whooping cough. In a series of 240 patients who received Sauer's vaccine, four blood counts being made in each case, there was an increase in lymphocytes. Haemophilus pertussis has agglutinated spontaneously both with normal serum and with the serum of patients with whooping cough. Agglutination has never been complete and the test is worthless in the diagnosis of whooping cough. The pertussis bacillus has not been universally accepted as the etiologic agent. The present investigation has shown that, although hematologic studies are of value only when the results are positive and that agglutination tests are without value, the complement fixation test may be relied on for the early diagnosis of whooping cough; that is, before the whoop develops. Sauer's vaccine was administered to 150 children. Complement fixation was secured one week later in 92 per cent and was complete in 61 per cent. All those who received as much as 14 cc. of vaccine had complete complement fixation. This proves that Sauer's vaccine is effective in producing complete fixation. Thirty-seven children who received Sauer's vaccine in May 1933 were exposed to whooping cough. Seven of these contracted the disease, but in each case it was mild. Seven children who were vaccinated in September 1934 and were exposed to whooping cough remained well. Twenty-eight children in whose blood complete fixation was secured by the use of Sauer's vaccine were directly exposed to whooping cough and did not contract the disease. In several cases the exposure was immediate. This indicates that the vaccine becomes effective as soon as complement fixation is secured, instead of three months after administration, as has been suggested. The author's studies have demonstrated that children who have whooping cough have complete complement fixation during the disease but may have no fixation a few months later. The same condition is true of vaccine. The immunity conferred by vaccination may last as long as that conferred by the disease.

American J. Obstetrics and Gynecology, St. Louis

32: 365-546 (Sept.) 1936. Partial Index

Acid-Base Balance of Blood During Normal Pregnancy and Puerperium. Margaret Nice, J. W. Mull, E. Muntwyler and V. C. Myers, Cleveland.—p. 375.
Contribution to Etiology and Treatment of Puerperal Inversion of Uterus. O. A. Gordon Jr., Brooklyn.—p. 399.
Consideration of Some of the Aspects of Sterility: Evaluation After Ten Years. G. L. Moench, New York.—p. 406.
*Nonprotein, Urea and Rest Nitrogen of Blood During Normal Pregnancy and Puerperium. J. F. Cadden and A. M. Faris, New York.—p. 421.
*Significance of Fetal Heart Tones in Ablatio Placentae. G. C. Richardson, Chicago.—p. 429.
Cesarean Section in Dystocia. G. C. Hanna, Philadelphia.—p. 452.
Benign and Malignant Polyps of Cervix Uteri. C. J. Geiger, Chicago. —p. 465.
Use of Recently Introduced Ergot Alkaloids in Puerperium: Notes. M. G. DerBrucke, Brooklyn.—p. 474.
Banti's Disease and Pregnancy; Splenectomy; Delivery of Full-Term Living Child Six and One-Half Months Later. C. H. McKenzie, Louisville, Ky.—p. 486.
New, Rapid, Economical Test for Pregnancy and Certain Gynecologic Conditions. G. C. Gilfillen and W. K. Gregg, Dayton, Ohio.—p. 498.
Ionization Method for Treatment of Endocervicitis. I. Forman, Philadelphia.—p. 503.
Dermoid Cyst Diagnosed by X-Ray. R. J. Heffernan, Boston.—p. 507.
Tracheo-Esophageal Fistula and Complete Esophageal Stenosis of the New-Born. F. A. Kassebohm and M. J. Schreiber, New York.—p. 509.
Palpation of Fetal Heartbeat Through Maternal Abdominal Wall. R. J. Griffin, Philadelphia.—p. 515.

Nonprotein, Urea and Rest Nitrogen During Pregnancy.—According to Cadden and Faris, it is generally agreed that normal pregnancy is accompanied by a decrease in blood urea nitrogen. A survey of the literature, however, reveals great disagreement among various investigators as to absolute figures observed during gestation, reported average values ranging from 6.8 to 12.5 mg. per hundred cubic centimeters of blood. Before reliance can be placed on any abnormalities found in the urea nitrogen content of the blood, as has been reported in certain of the toxemias of pregnancy, it becomes essential that the normal pregnancy values be established. For accurate estimation of blood urea nitrogen by any method involving the use of urease it is essential that certain factors, such as the hydrogen ion concentration, the type of buffer used and the temperature, be carefully regulated. The authors determined the nonprotein, urea and rest nitrogen in 163 blood specimens obtained from normal pregnant women at different periods of gestation during labor and on the eighth day post partum. They found that the nonprotein nitrogen of the blood decreases during the first six months of pregnancy from the average nonpregnant values of approximately 30 to 24 mg. per hundred cubic centimeters of blood. During the last four months of pregnancy the nonprotein nitrogen increases steadily until one week post partum, when it averages 33 mg. per hundred cubic centimeters of blood, being about 26 mg. at term. The urea nitrogen concentration diminishes during the first six months from the usual nonpregnant value of about 14 mg. to a value of 6 mg. per hundred cubic centimeters of blood and then maintains a constant level until the eighth, or ninth month, when it begins to rise, having an average value of 7.12 mg. at term and 11 mg. per hundred cubic centimeters of blood on the eighth day post partum. Owing to the fact

that the nonprotein nitrogen falls and rises more rapidly than the urea nitrogen, the rest nitrogen falls during the first six months of pregnancy to a value of 18.02 mg. per hundred cubic centimeters of blood and then increases during the latter part of pregnancy, being 19.18 mg. at term. It is further increased during the first week post partum, reaching a value of 21.39 mg. on the eighth day of the puerperium. Although it is quite evident that a change in the rest nitrogen is not necessarily accompanied by a change in the urea nitrogen over nonprotein nitrogen ratio, figures show that the urea nitrogen to nonprotein nitrogen ratio is decreased during pregnancy, being 0.25 during the sixth or seventh month and 0.27 at term. The normal nonpregnant value for this ratio is approximately 0.5.

Fetal Heart Tones in Ablatio Placentae.—In reviewing cases of ablatio placentae, it would seem to Richardson that the greatest practical value in studying the significance of fetal heart tones would be derived by classifying them in accordance with their degree of separation. Since both extreme and intermediate variables of rate and area separation are represented in these cases, they might be accepted as a standard of future investigation. Taking as a basis a normal case with average fetal heart tones of from 136 to 140 and the placenta completely attached, the separating of from one fourth to one third of the area would lead one to expect the fetal heart tones to be from 160 to 170; while with one-half separation and fetal heart tones of from 180 to 190, the time factor considered, the fetus passes from a compensation phase into a phase of asphyxia. When the fetal heart tones decrease with three-fourths separation of placenta from 90 to 70, fetal death will occur before, at or immediately after complete detachment. This process may involve five minutes or five hours and will obviously present some variations, depending on the elapsed time occupied by any phase along this uniform line of events. With this basis one can observe the acceleration of the fetal heart rate and thereby arrive at a diagnosis of the approximate, and usually quite exact, area of placenta that has become separated. Such an evaluation renders the wide application of these figures obvious. To secure all the information obtainable from variations in the fetal heart rate, especially in labor, the rate should be observed at definite and frequent time intervals, say at intervals of fifteen or thirty minutes, making evident the response of the fetal organism to the primary embarrassment of ablatio placentae before other signs of this complication are present, and also before this accident has reached a stage critical to mother or fetus. By securing this earlier information it would be evident that, in by far the greater number of cases, ablatio placentae is not an abrupt process at all but insidious in its course and that it usually presents time for more adequate and satisfactory treatment than is usually given. Earlier diagnosis narrows the differential value between ablatio placentae and placenta praevia.

American Journal of Orthopsychiatry, Menasha, Wis.

6: 341-476 (July) 1936

Use of Puppet Shows as Psychotherapeutic Method for Behavior Problems in Children. Lauretta Bender and A. G. Woltmann, New York.—p. 341.
Use of Consultation Method in Case Work Therapy. P. Sloane, Philadelphia.—p. 355.
Psychometric Practice in Adults of Superior Intelligence. F. L. Wells and N. W. Hylan, Boston.—p. 362.
Rôle of Forgettery in Education. I. S. Wile, New York.—p. 376
Attempt to Determine Degree of Antisocial Behavior in Psychopathic Personalities and Its Correlation with Porteus Maze and Binet-Simon Tests. J. J. Michaels, Boston, and Margaret E. Schilling, Ann Arbor, Mich.—p. 397.
Children's Problems: Generalized Approach. S. E. Jelliffe, New York.—p. 406.
Some Implicit Common Factors in Diverse Methods of Psychotherapy. S. Rosenzweig, Worcester, Mass.—p. 412.
Trends in Social Therapy. Elma Olson, Evanston, Ill.—p. 416.
Remedial Reading Methods. T. G. Hegge and L. B. Ward, Northville, Mich.—p. 421.
Objective Tests, Including Bernreuter Personality Inventory, as Constructive Elements in Counseling Technic. Eleanor Hope Johnson, Hartford, Conn.—p. 431.
New Profession: Psychiatric Criminology. L. S. Selling, Detroit.—p. 437.
Prophylactic Technic for Spasmophemia in Mongols. C. H. Voelker, Hanover, N. H.—p. 440.
Some Notes on Sex Mores Among Negro Children. A. T. Childers, Cincinnati.—p. 442.
Polysynthetic Extroversion Therapy for Reduction of Catatonic Attacks: Case Report. V. Ujhely, Bath, N. Y.—p. 449.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

20: 467-582 (Sept.) 1936

Pathology of Aorta in Haitian Treponematosis. C. V. Weller, Ann Arbor, Mich.—p. 467.
*Mapharsen in Treatment of Early Syphilis. G. V. Kulchar and C. W. Barnett, San Francisco.—p. 482.
Treatment of Gonorrhea in the Male: Discussion of Modern Methods of Treatment. W. M. Brunet and S. Seltzer, Chicago.—p. 487.
Id.: Study of 600 Cases of Gonorrhea Treated with Irrigations of Potassium Permanganate and Injections of Silver Proteinate. W. M. Brunet and S. Seltzer, Chicago.—p. 492.
Response of Quantitatively Titered Wassermann Test in Early Syphilis to Treatment with Five Different Arsenical Drugs. J. E. Moore, S. M. Hardy, H. M. Robinson, Baltimore, and H. Eagle, Philadelphia.—p. 503.
*Value of Kline Exclusion Test in Serodiagnosis of Syphilis: Results Based on Evaluation of Serodiagnostic Tests for Syphilis in the United States. C. R. Rein, New York.—p. 515.
Age Distribution of Syphilis Among Indigent Patients: Based on Blood Kahn Reactions of 12,115 County Hospital Patients. S. E. Gould, Eloise, Mich.—p. 523.
Syphilis in the American Negro. H. H. Hazen, Washington, D. C.—p. 530.
Professor Ernest Finger Today. W. Clarke, New York.—p. 562.

Mapharsen in Treatment of Early Syphilis.—During the last twenty months Kulchar and Barnett have given 1,270 injections of mapharsen to fifty-six patients with untreated primary or secondary syphilis. Nine were in the seronegative primary stage, eleven in the seropositive primary stage and thirty-six in the secondary stage when treatment was started. The treatment schedule consisted of courses of ten weekly injections of mapharsen alternating with courses of twelve injections of iodobismitol given twice a week in the first course and once a week in subsequent courses. Standard doses of mapharsen, 60 mg. for men and 40 mg. for women, were used. The dose of iodobismitol was 2 cc. The rate of disappearance of lesions under mapharsen therapy was observed in twenty cases. In ten patients primary lesions healed in from four to thirty days, the mean being thirteen days. The average time of involution of secondary syphilides in ten patients was the same. This interval corresponds to an average of two injections of mapharsen and is less than the twenty-three days reported by Cannon and Karelitz as the average period of involution using neoarsphenamine. Wassermann reactions were done before starting treatment and at the end of each course. From this comparison it appears that the rate of serologic reversal is slower with mapharsen than with arsphenamine. In thirty patients Wassermann reactions were obtained after the completion of at least twenty injections each of mapharsen and iodobismitol. The final reactions were negative in twenty-five, weakly positive in two, and strongly positive in three. The cerebrospinal fluid was examined in twenty-one patients after at least six months of regular treatment. In fifteen the fluid was normal. Of the six abnormal fluids two were of the group I (cells or protein increased), three of the group II (Wassermann reaction partially positive), and one of the group III type (paretic formula). The patient in whom the group III fluid was found developed clinical signs of early dementia paralytica after receiving one year of regular treatment. Because of the small number of spinal fluids examined, the apparent high incidence of positives (29 per cent) may not be significant. Pruritus, skin eruptions and immediate reactions, including nitritoid crises, were slightly more frequent with neoarsphenamine than with mapharsen. All other types of reaction, particularly nausea, vomiting, diarrhea and headache, are more common following mapharsen. Venous thromboses, often severe and extensive, occurred following nearly 1 per cent of the 1,270 injections of mapharsen, while none followed the use of neoarsphenamine. Of the thirty-three patients receiving two or more courses of mapharsen, all but four experienced some reaction to the drug. The period of observation is too short and the number of patients too small for a complete clinical appraisal of mapharsen. Serologic fastness and relapse, central nervous system involvement and treatment reactions, however, are evidently not avoided in early syphilis by the use of mapharsen.

Kline Exclusion Test in Diagnosis of Syphilis.—Rein asserts that, in the recent evaluation plan for the serodiagnosis of syphilis, the Kline exclusion heated serum test was the most sensitive of all tests in group A (less than 1 per cent false

positive reactions in 468 presumably nonsyphilitic persons). By means of this test more persons with primary and latent syphilis (with varying amounts of treatment) were detected than by any other test (in group A). This is particularly important in the control of syphilis, especially in outpatient departments and clinics and immediately before transfusions to prevent the transmission of syphilis. As a secondary consideration, the low cost of materials and the rapidity and ease of performance of the slide tests deserve the highest regard.

Anatomical Record, Philadelphia

66: 127-252 (Sept. 25) 1936

Anatomy of So-Called "Valves" of Umbilical Vessels, with Especial Reference to "Valvulae Hobokenii." Mary Spivack, Chicago.—p. 127.
Histologic Studies on Lipins: I. Osmic Acid as Microchemical Reagent, with Especial Reference to Lipins. N. L. Hoerr, Chicago.—p. 149.
*Iron-Hematoxylin-Aniline-Blue Staining Method for Routine Laboratory Use. A. A. Koneff, Berkeley, Calif.—p. 173.
Hormone Stimulation of Spermatogenesis in Testis of Ground Squirrel. L. J. Wells and C. R. Moore, Chicago.—p. 181.
Studies on Physiology of Lactation: V. Induction of Lactation in Depancreatized Dogs. W. O. Nelson, H. E. Himwich and J. F. Fazekas, New Haven, Conn.—p. 201.
Pars Intestinalis of Common Bile Duct, as Viewed by Older Anatomists (Vesalius, Glisson, Bianchi, Vater, Haller, Santorini, etc.). E. A. Boyden, Minneapolis.—p. 217.
Early Development of Thyroid Gland in Dog, with Especial Reference to Origin and Position of Accessory Thyroid Tissue Within Thoracic Cavity. M. C. Godwin, Ithaca, N. Y.—p. 233.

Iron-Hematoxylin-Aniline-Blue Staining Method.—Koneff's method permits the demonstration of most types of tissue simultaneously and with sufficient differentiation to form a judgment of the total histologic make-up of the organ. The method will also demonstrate clearly certain pathologic changes. The staining procedure may be used after any of the common fixatives. Sections are mordanted in 5 per cent aqueous solution of iron and ammonium sulfate (violet crystals) for five to ten minutes, and rinsed quickly in distilled water, and then stained in Harris's hematoxylin for from three to fifteen minutes. They are again washed in distilled water and placed in a mixture of 0.1 Gm. of aniline blue (Grübler), 2 Gm. of oxalic acid, 15 Gm. of phosphomolybdic acid and 30 cc. of distilled water. This solution simultaneously differentiates the hematoxylin and stains with aniline blue. Proper nuclear and cytoplasmic differentiation is observed after about fifteen minutes. For this purpose the sections are washed in distilled water and examined under the microscope. If differentiation and staining are incomplete, the sections are returned to the staining solution for a longer time. Tissue that has been stored for a long time in 80 per cent alcohol or as celloidin blocks in glycerin-alcohol requires from forty-five to sixty minutes' staining time, while recently fixed material usually requires from fifteen to twenty-five minutes and is then washed in distilled water, differentiated and dehydrated in two changes of absolute alcohol, cleared in xylene and mounted in balsam. If euparal is used as the mounting medium, the xylene may be omitted. When staining loose celloidin sections, 95 per cent alcohol is substituted for absolute alcohol and the sections are mounted in euparal. Clearing in creosote is not necessary unless the sections are mounted in balsam.

Annals of Internal Medicine, Lancaster, Pa.

10: 283-426 (Sept.) 1936

Present Status of Pernicious Anemia: Experience with 600 Cases Over Eight Years. C. C. Sturgis, Ann Arbor, Mich.—p. 283.
Vascular Physiology and Clinical Medicine. E. M. Landis, Philadelphia.—p. 290.
Errors in Cardiovascular Roentgen-Ray Interpretation. H. Roesler, Philadelphia.—p. 299.
Roentgenkymography: Its Clinical and Physiologic Value in Study of Heart Disease. W. G. Scott and S. Moore, St. Louis.—p. 306.
*Revival of Human Hearts. W. B. Kountz, St. Louis.—p. 330.
*Lymphosarcoma and Hodgkin's Disease: Clinical Characteristics. S. Ginsburg, New York.—p. 337.
Prophylactic and Therapeutic Value of Convalescent Serums in Some of Acute Infectious Diseases. W. Thalhimer, New York.—p. 373.
Value of Certain Diagnostic Procedures in Bronchopneumonia: Clinical Study. J. V. Fopeano, Ann Arbor, Mich.—p. 379.
What the Physician Should Know About Dental Problems. W. J. Kerr, San Francisco.—p. 386.

Revival of Human Hearts.—Kountz points out that the method of perfusion of the heart has not advanced since the days of Langdorf, who isolated a heart, inserted a cannula into the aorta and perfused the coronary vessels by backflow of the perfusing solution through the aorta. This method was satisfactory as a means of determining the viability of the heart but would not suffice to keep hearts viable for a period sufficiently long to permit physiologic observation. In general the hearts were found to dilate in a short period if the pressure in the aorta was raised sufficiently to permit perfusion of the coronary system. Therefore a cannula was constructed that would permit the development of different pressures in the ventricle and in the coronary arteries. Cannulas were inserted into the coronary arteries through the aorta. A large cannula was then introduced over the coronary ones through the aorta and past the aortic valves. Different pressures were maintained in the two systems by individual reservoirs. The pressure in the cannulas of the coronary arteries was maintained at about 120 mm. of mercury, whereas that in the ventricle was varied according to the contractility of the heart. One could thus perfuse hearts for a period or could make heart-lung preparations that would last for several hours. The hearts of 127 persons who had died of various conditions have been studied. Sixty-five have been revived to the point of ventricular contraction. Of these, forty-eight developed regular cardiac mechanism and beat for a period of at least two hours. Fifteen heart-lung preparations have been made, and cardiac contractions against a blood pressure of 120 mm. of mercury have been maintained for as long as four hours. The functions of the other hearts were studied by perfusion of the coronary vessels. The time after death and the nature of the disease had definite influence on the viability of the heart. The causes of death ranged from heart disease to death by accident. In general, in those patients dying from chronic illness revival could as a rule be accomplished more easily than in those succumbing to acute infection. The hearts of persons who died of tuberculosis revived more easily than those of any other group whose death was due to a single cause. The hearts of children were usually more responsive than those of adults. The greatest difficulty was encountered in the hearts of those who had succumbed to diseases of the heart itself. Congenitally defective hearts were relatively easy to revive. The longer the period after death the greater likelihood there was of thrombosis in blood vessels and the greater the probability of dilatation of the heart when the experiment was started. In addition to cutting the bundles, the surface of the heart was electrically stimulated and the localization and nature of extrasystoles were determined. Four general types of extrasystoles were observed.

Lymphosarcoma and Hodgkin's Disease.—Ginsburg says that lymphosarcoma and Hodgkin's disease invade every organ and tissue of the body. There are no pathognomonic clinical signs of lymphosarcoma and Hodgkin's disease; hence extraglandular involvement of either disease has frequently been overlooked and mistaken for non-neoplastic conditions. Both diseases are characterized by marked invasion, proliferation, replacement and compression of organs and tissues, necrotization, ulceration, toxemia, cachexia and febrile reaction. Both diseases may spontaneously run an acute, a subacute or a chronic course. The only method of differentiation is on the basis of morphologic microscopic criteria, which are not always conclusive. The etiology of lymphosarcoma and Hodgkin's disease is obscure. Gordon's claim for a filtrable virus as the cause of Hodgkin's disease still needs confirmation. There is no specific method of treatment for either disease. Chemotherapy, vaccine and toxin treatment, surgery and irradiation are purely palliative methods which, in selected cases, have produced favorable results with freedom from clinical evidence of disease for many months and years. Both lymphosarcoma and Hodgkin's disease invade, infiltrate and destroy organs and tissues not only by direct extension but also by lymphogenous and hematogenous metastases as in epithelial cancer; hence early recognition is essential for successful irradiation or any other form of local treatment. In doubtful cases in which a biopsy is unobtainable, the radiotherapeutic test may be greatly helpful not only in arriving at a diagnosis but also in relieving the patient. The clinical course, the prognosis, the mode of death, the results of chemotherapy, vaccines, toxins, radium, roentgen therapy and surgery as observed in lympho-

sarcoma and in Hodgkin's disease run closely parallel. Hodgkin's disease varies in no fundamental clinical characteristics from lymphosarcoma.

Archives of Internal Medicine, Chicago

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Clinical Survey of 108 Consecutive Cases of Diabetic Coma. T. W. Baker, Rochester, Minn.—p. 373.
*Syncope and Convulsions Due to Hyperactive Carotid Sinus Reflex: Diagnosis and Treatment. Soma Weiss, R. B. Capps, E. B. Ferris Jr. and D. Munro, Boston.—p. 407.
Carotid Sinus Nerve in Man. P. C. Bucy, Chicago.—p. 418.
Adrenal Sympathetic Syndrome with Unusual Variations in Cardiac Rhythm: Report of Case. A. M. Burgess, G. W. Waterman and F. B. Cutts, Providence, R. I.—p. 433.
Adrenal Glands: Clinical and Pathologic Study. E. M. Hall and Louisa Hemken, Los Angeles.—p. 448.
Etiologic Significance of Streptococci in Epidemic Encephalitis: II. Experiments with Animals and Conclusions. K. L. Burdon, E. W. Thurston, P. L. Varney and J. Bronfenbrenner, St. Louis.—p. 469.
*Purpura Haemorrhagica Following Administration of Neoarsphenamine: Reaction to Neoarsphenamine Compared with Reaction to Mapharsen. E. H. Falconer and N. N. Epstein, San Francisco, and G. K. Wever, Stockton, Calif.—p. 495.
Infectious Mononucleosis: Further Studies. C. A. Stuart, Henry Welch, J. Cunningham and A. M. Burgess, Providence, R. I.—p. 512.
Copper and Iron in Human Blood: IV. Normal Children. A. Sachs and V. E. Levine, Omaha, and A. A. Fabian, New York.—p. 523.
Peripheral Vascular Diseases: Review of Some of Recent Literature and Critical Review of Surgical Treatment. G. W. Scupham and G. de Takáts, Chicago.—p. 531.

Convulsions Due to Hyperactive Carotid Sinus Reflex.—According to Weiss and his associates, a hyperactive state of the carotid sinus reflex can be responsible for clinical symptoms, including attacks of syncope and convulsions. Syncope and related manifestations result from cardiac slowing, primary depression of the blood pressure or a central reflex to the brain. The mechanism causing the reaction often appears in a mixed form. Spontaneous attacks can be induced by mechanical stimulation of the carotid sinus. Digitalis sensitizes the carotid sinus reflex mechanism. The routine preoperative administration of this drug, particularly to elderly patients, is not without danger. Various morbid states play a part in sensitizing the carotid sinus reflex, and treatment of the disease, when efficacious, diminishes or abolishes the hypersensitive carotid sinus reaction. Both the vagal and the depressor type of reaction can be controlled by ephedrine and epinephrine. Atropine abolishes the vagal type but has no effect on the depressor type. The cerebral type is not benefited by these drugs. Surgical denervation of the carotid sinus abolishes spontaneous and induced attacks in suitable cases but does not influence any of the unrelated accompanying symptoms.

Hemorrhagic Purpura Following Administration of Neoarsphenamine.—In the syphilis clinic at the University of California since 1924 about 60,000 treatments with arsphenamine have been administered; Falconer and his co-workers found four recorded cases of hemorrhagic purpura. The data on three of the patients, the first observed in 1931 and the other two from 1932 to 1935, constitute the material for their report. These three patients showed two distinct types of sensitivity to neoarsphenamine. The first patient became increasingly sensitive until a crisis occurred in the form of a severe reaction followed by hemorrhagic purpura. He was sensitive in 1931 during the first course of neoarsphenamine treatment, for he recalled at least two occasions when he had mild hemorrhagic manifestations. Apparently no nitritoid reaction preceded the bleeding. The fact that he received no arsenicals and no treatment of any kind for a year did not suffice to abolish the sensitivity, as was evidenced by the severe reaction after the fourth dose of neoarsphenamine in the second series of treatments. The other two patients belong to a group, probably small, that present an initial sensitivity to neoarsphenamine. The second patient presented marked hypersensitivity to the drug from the standpoint of a toxic reaction of the platelets and capillaries. This case, and the cases reported by other investigators, illustrate that sensitivity is not dependent on the amount of the drug previously administered. The second patient had not received any arsphenamine previous to Sept. 28, 1933, when she received her first dose of neoarsphenamine. After the second dose of 0.15 Gm., purpuric manifestations appeared. She had a nitritoid reaction after each dose. When she reported to the hematologic clinic one week after receiving the second dose, although the purpuric spots were still well marked, the platelets had returned to a normal number and the bleeding time was normal. The marked sensitivity to neoarsphenamine presents a sharp contrast to the entire lack of any untoward reaction from mapharsen. This applies to both the second and the third patient and certainly suggests that the sensitivity is not to arsenic as such but to some oxidation product not present in mapharsen. The question as to whether mapharsen can be safely used after the occurrence of hemorrhagic purpura is answered in the affirmative by the results in the authors' two cases but requires further observation.

Archives of Pathology, Chicago

22: 293-434 (Sept.) 1936

Further Investigations on Experimental Atherosclerosis. J. W. Jobling and Dorothy R. Meeker, New York.—p. 293.
Human Atherosclerosis in Relation to Cholesterol Content of Blood Serum. K. E. Landé and W. M. Sperry, New York.—p. 301.
Vascularization and Hemorrhage of Intima of Arteriosclerotic Coronary Arteries. J. C. Paterson, Toronto.—p. 313.
*Shock: Definition and Differentiation. V. H. Moon, Philadelphia.—p. 325.
Diverticulum of Gallbladder: Report of Three Cases. G. Rukstinat, Chicago.—p. 336.
*Focal and General Tissue Responses to an Avirulent Tubercle Bacillus (BCG). S. R. Rosenthal, Chicago.—p. 348.
Hepatic Changes on Injection of Sodium Dehydrocholate in Cats with Total Bile Stasis. A. Cantarow and H. L. Stewart, Philadelphia.—p. 373.

Shock: Definition and Differentiation.—Moon defines shock as a circulatory deficiency, not cardiac or vasomotor in origin, characterized by a decreased volume of blood and cardiac output and by hemoconcentration. Hemoconcentration appears early, is easily determined and is seen in cases of moderate severity before variations in the blood pressure occur. When the syndrome is fully developed, lowered blood pressure and lowered basal metabolism, diminished renal excretion and an increased cardiac rate are associated features. Each of these associated features may occur in conditions other than shock, but their combination with the circulatory deficiency described seems to constitute a definite entity. Shock is simulated clinically by hemorrhage, syncope and rapidly developing cardiac failure. It presents pathologic features resembling those of passive congestion. The circulatory phenomena of shock result from a disparity between the volume of the blood and the capacity of the blood vessels. Any loss of fluid, such as that caused by hemorrhage following trauma or local loss of fluid as in burns, will contribute to this disparity, and its importance will be proportionate to the amount of blood and/or fluid lost. Primary shock is essentially similar to syncope, and it has not been shown that these conditions are accompanied by a decreased volume of blood or by hemoconcentration. Primary shock and syncope appear to be transient vasomotor phenomena in which no qualitative changes occur in the capillary walls or in the blood. Shock simulates exsanguination clinically, while its pathologic features resemble those of passive congestion. The similarity to passive congestion accounts for the failure of pathologists to recognize the visceral changes of shock. In the absence of cardiac disease, the diagnosis of congestive circulatory failure as a cause for death is more accurate than that of congestive heart failure. The visceral engorgement characteristic of shock is not designated accurately either as active congestion or as passive congestion. It seems necessary to formulate a suitable term. "Acute venous congestion" is suggested as appropriate.

Tissue Responses to an Avirulent Tubercle Bacillus (BCG).—Rosenthal attempts to answer the questions of what the reaction in remote parts of the body is, particularly in the susceptible tissue in the sense of Besredka, when an avirulent organism (BCG) which tends to remain localized is injected, and whether tubercles in various organs develop similarly. An attempt also is made to correlate the humoral and the tissue responses. Following the intracardiac injection of avirulent tubercle bacilli (BCG) there developed not only a specific reaction with tubercle formation in various organs but a generalized histiocytic response manifest most prominently in the septal cells of the lungs, Kupffer cells of the liver, endothelial and reticulum cells of the kidneys and spleen and histiocytes of the

endocardium and epicardium. This generalized response of the reticulo-endothelial system is ascribed to submicroscopic forms of the tubercle bacilli (BCG) as shown by cultural studies. The formation and regression of the tubercle have been traced. The number of bacilli and the organs involved determined to a large extent the proliferative or exudative character of the nodule. The infiltration of the tubercle by lymphocytes was associated with the healing of the process. The changes in the blood reflected those of the tissues. The fate of the bacilli (BCG) differed in the various organs.

Arkansas Medical Society Journal, Fort Smith

33: 81-96 (Oct.) 1936

Emergency Treatment of Fractures. J. F. Shuffield, Little Rock.—p. 81.
Chronic Tonsillitis and Hyperthyroidism. F. J. Scully, Hot Springs National Park.—p. 83.

Delaware State Medical Journal, Wilmington

8: 181-198 (Sept.) 1936

Medical Report of Ferris Industrial School. R. W. Tomlinson, Wilmington.—p. 181.

Endocrinology, Los Angeles

20: 611-740 (Sept.) 1936

Childhood Myxedema: Observations Through Infancy, Childhood and Early Adult Life. C. G. Kerley, New York.—p. 611.
Impedance Angle and Thyroid Disease. M. A. B. Brazier, London, England.—p. 621.
Creatine Studies in Thyroid Disorders. G. W. Thorn, Boston.—p. 628.
Effect of Total Thyroidectomy on Experimentally Induced Menstruation in Mature Ovariectomized Monkeys. T. H. Burford, E. Allen and A. W. Diddle, New Haven, Conn.—p. 635.
*Modification of Frank-Goldberger Blood Estrin Test. T. Neustaedter, New York.—p. 639.
Tube-Locking of Ova by Estrogenic Substances. R. Whitney and H. O. Burdick, Alfred, N. Y.—p. 643.
Metabolism of Levulose: IX. Influence of Endocrine Dysfunction on Tolerance. A. W. Rowe, Mary A. McManus, A. J. Plummer and Gertrude A. Riley, Boston.—p. 648.
Spontaneous Activity of Adrenalectomized Rats Treated with Replacement and Other Therapy. C. P. Richter, Baltimore.—p. 657.
Fundamental Factors in Interpretation of Stimuli Influencing Endocrine Glands. H. Selye and J. B. Collip, Montreal.—p. 667.
*Relation of Basophilic Cells of Human Hypophysis to Blood Pressure. A. T. Rasmussen, Minneapolis.—p. 673.

Modification of Frank-Goldberger Blood Estrogen Test.—The method for extracting estrogenic substance from blood that Neustaedter now uses is as follows: About 40 cc. of blood is transferred from a syringe to a petri dish containing from 30 to 40 Gm. of anhydrous disodium sulfate, mixed thoroughly with a glass rod, fanned until the mass has the consistency of fudge, transferred to a mortar and ground to a very fine powder as the mixture dries; then the powder is returned to the petri dish for storage if the procedure must be interrupted at this point. If the mixture does not harden, more disodium sulfate is added. The red powder is transferred to a 250 cc. Erlenmeyer flask and 100 cc. of ether is added, stoppered tightly with rubber and agitated for twenty minutes in a shaker. The flask is rested on a specially constructed board at an angle of 45 degrees to separate the ether from the sludge by sedimentation. The supernatant fluid is decanted and centrifugated. The process is repeated twice. The centrifugated ether is evaporated to dryness in an evaporating dish before an electric fan. The lipoid residue is dissolved in 6 cc. of benzene to which 0.6 cc. of olive oil is added. The benzene is fanned off. The olive oil, which now contains the lipoid extract, is sterilized by autoclaving at 15 pounds for fifteen minutes. This extract may be kept for several days if rubber stoppered and stored in the dark. The extract is injected into mature, castrated female mice in divided doses. On the first day three injections are given at intervals of four hours. Two injections at the same interval are made on the following day. The extract is introduced into the mouse dorsally and subcutaneously. Beginning on the third morning, vaginal smears are prepared twice daily for four days. The smears are made with a small bent glass tube drawn to a fine tip. By means of a rubber bulb, a drop of water is repeatedly injected and reaspirated from the vaginal canal so that a uniform and typical sample of vaginal secretion is secured. The specimen is transferred to a clean slide, dried, fixed and immersed in aqueous thionin (1 per cent) for one minute; excess stain is removed with water. The vaginal smear is examined for an estrous reaction.

Basophilic Cells of Hypophysis and Blood Pressure.—Rasmussen considers two types of basophilic cells in the human hypophysis. It is reaffirmed that those extending into the nervous lobe are derived from the pars intermedia. Tinctorially the posterior lobe basophils are essentially like those found in the anterior lobe. A slight difference in color may be obtained sometimes. Morphologically, the ones in the posterior lobe do not as a rule attain the size of the basophils of the anterior lobe, nor are they as vacuolated. In pituitary basophilism those of the posterior lobe do not show the hyaline changes to the same extent that these changes occur in the basophils of the anterior lobe. The relationship of the basophilic cells of the hypophysis to elevated blood pressure is far from proved. Several recent observations show no correlation between excessive invasion of basophils into the nervous lobe and eclampsia. The trend of the evidence in essential hypertension is in the same direction. There are more basophils in both the anterior lobe and the posterior lobe in men than in women. The accumulation of basophilic cells in the posterior lobe increases slowly with age and, while blood pressure also tends to rise with age, one is not necessarily the cause of the other. Three cases of pituitary basophilism are added to those already described by Crooke, showing the characteristic hyaline change in the cytoplasm of the basophils of the anterior lobe, regardless of whether there was a pituitary adenoma, an adrenal neoplasm or neither. The last patient had enough inflammation and edema in the adrenals to account for much, if not all, of the enlargement of these glands. These hyaline changes occur only rarely and then only to a slight degree in essential hypertension, eclampsia or other cases of high blood pressure unaccompanied by the other characteristics of pituitary basophilism.

Florida Medical Association Journal, Jacksonville

23: 113-158 (Sept.) 1936

Cautery in Acute Epididymitis and Orchitis. J. C. Vinson and J. J. Guerra, Tampa.—p. 127.
Treatment of Acute Lobar Pneumonia. F. Mathers, Gainesville.—p. 129.
Commonsense Obstetrics. J. L. Hargrove, Bartow.—p. 133.
Statistical Study of Acute Appendicitis. W. E. Murphree, Raiford.—p. 136.

Illinois Medical Journal, Chicago

70: 205-304 (Sept.) 1936

Sarcoma of Uterus. W. T. Carlisle, Chicago.—p. 227.
Gyneplastic and Minor Operations Immediately Following Delivery. O. H. Crist, Danville.—p. 231.
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Consideration of Some of More Serious Conditions Encountered in the New-Born. A. H. Parmelee, Oak Park.—p. 250.
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Id.: Relation to Supplementary Feeding in the New-Born. H. G. Poncher, Chicago.—p. 258.
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Injection Treatment of Hernia. W. M. McMillan, Chicago.—p. 264.
*Histologic Changes in Tissues of Man and Animals Following Injection of Irritating Solutions Intended for Cure of Hernia. C. O. Rice and H. Mattson, Minneapolis.—p. 271.
Acute Coronary Occlusion: Points on Diagnosis and Treatment. H. A. Richter, Evanston.—p. 278.
Renal and Ureteral Anomalies. W. W. Furey, Chicago.—p. 281.
Carcinoma of Colon. D. B. Freeman, Moline.—p. 286.
*Occurrence of Virucidal Substances in Patients with Poliomyelitis: Bearing on Serum Treatment and Vaccination. P. H. Harmon and H. N. Harkins, Chicago.—p. 289.
Five Year Review of Anterior Poliomyelitis in the Chicago Area. S. O. Levinson, Chicago.—p. 296.

Histologic Changes Following Injections for Cure of Hernia.—Rice and Mattson find that fibrous tissue is produced in the human being following the injection of irritating solutions intended for the cure of hernia. Such changes are characteristic of an inflammatory reaction in which the production of the connective tissue predominates. Solutions that produce less of the exudative reaction seem scientifically more rational. Clinical trial has proved the method to be effective in carefully

selected cases, and histologic investigations seem to establish a scientific rationale for the method. At the end of fifteen hours the reaction was mostly exudative. Polymorphonuclear and round cells were found in the exudate. Proliferations of the fixed connective tissue cells appeared on the first day. By the fifth day, most of the polymorphonuclear cells had disappeared. Fibroblasts appeared on the third day. Fibrous tissue was found in dense bundles after fourteen days. At the end of the forty-second day, fibrous tissue was very dense.

Virucidal Substances in Patients with Poliomyelitis.—According to Harmon and Harkins, since poliomyelitis seems to be an exclusive disease of the nasopharynx and nervous system in man, the irregular extraneural migration of virus is thought to explain the irregularity of production of neutralizing antibody. Infection can be blocked by peripheral nerve section or by section of the olfactory tracts. Chemical blockage of infection at the nasopharyngeal port of entry appears to have been demonstrated recently. The latter method may have some value in prophylaxis of the human disease. The specific virus neutralizing substance in poliomyelitis is unique in that a greater number of adults without history of contact or infection possess this substance than do convalescents from the disease. The average concentration of immune substance in normal adults is equal to or greater than that carried by convalescents. The importance of an actual attack of poliomyelitis in the production of this substance is minimized by serologic studies. Convalescent and other specific serum therapy should be continued, as there is no evidence that it is not of value. On the other hand, symptomatic improvement following serum administration is almost universal. There are indications that preparalytic poliomyelitis in man is a naturally milder type of the disease than the cases seen after paralysis is present. At present specific vaccination is considered to be too dangerous to be applied to man without careful supervision in a controlled study in non-epidemic months.

Iowa State Medical Society Journal, Des Moines

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Socialization of Medicine—To What Extent Is It Desirable? A. C. Christie, Washington, D. C.—p. 499.
Clinical Manifestations of Intracranial Lesions. W. E. Ash, Council Bluffs.—p. 503.
Certain Aspects and Fundamentals of Intracranial Surgery. O. R. Hyndman, Iowa City.—p. 506.
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Acute Intestinal Obstruction. E. B. Howell, Ottumwa.—p. 524.
Congenital Atresia of Esophagus with Tracheo-Esophageal Fistula. F. P. McNamara and C. C. Lytle, Dubuque.—p. 526.

Journal of Allergy, St. Louis

7: 543-654 (Sept.) 1936

Studies in Hay Fever: Specific Desensitization of Skin Sites in Actively Sensitive Persons. H. C. Wagner and F. M. Rackemann, Boston.—p. 543.
*Study of Prophylactic Action of Extract of Poison Ivy in Control of Rhus Dermatitis. J. M. Blank and A. F. Coca, Pearl River, N. Y.—p. 552.
Studies in Contact Dermatitis: II. Adhesive Plaster Dermatitis: Clinical and Immunologic Observations on Patients Sensitive to Adhesive Plaster. M. Grolnick, Brooklyn.—p. 556.
*Use of Blister Fluid for Passive Transfer Skin Test. S. J. Parlato, Buffalo.—p. 573.
Relative Merits of Seasonal and Perennial Treatment of Hay Fever. A. Vander Veer, New York.—p. 578.
Skin Hypersensitivity to Molds: Attempt to Correlate This with Clinical Allergy. R. W. Lamson and E. L. Rogers, Los Angeles.—p. 582.

Control of Rhus Dermatitis.—During the summer of 1935, Blank and Coca were enabled to make a suitably controlled study of the influence of injections of poison ivy extract on the incidence of ivy dermatitis in the CCC Veterans Camp MC-64, Morristown, N. J. The men spent their active working days in areas which abound with the poison ivy and poison sumac plants, and contacts were unavoidable. The exposed men, all working under approximately the same conditions, in areas contaminated with ivy and sumac, were to be listed in three groups: (1) to receive four injections, at weekly intervals, of 0.5 cc. of almond oil containing 10 per cent by volume of acetone and 0.1 per cent of solids extracted from poison ivy leaves with acetone and freed from chlorophyll, (2) to receive four weekly injections of 1 cc. of a similar extract containing 0.66 per cent of the poison ivy solids, and (3) to receive no prophylactic injections. As the men presented themselves with ivy dermatitis they were in rotation to be treated with the two extracts and almond oil with 10 per cent of acetone. The prophylactic and therapeutic injections were begun on June 17, and shortly after this there was a decline in the number of cases and in the number of days lost on account of ivy dermatitis, which continued steadily until the first of August, when the incidence of this condition reached zero. There were no cases in the month of August and only one in September, in a man who had not received any injection of ivy extract. Of the untreated men of the third group, 66⅔ per cent became affected with ivy dermatitis, whereas among the two treated groups of equally exposed men only 20 per cent and 7 per cent respectively were affected. The percentage of the affected controls corresponds closely with the percentage of adults who have been found by skin test with strong extracts of poison ivy to be sensitive to this plant. It is seen also that protection was established in a greater proportion of the group that received the larger dose than it was in those receiving only one-twelfth that dose.

Use of Blister Fluid for Passive Transfer Test.—Parlato undertook the present study for the purpose of determining whether the fluid contents of burn blisters contained skin sensitizing antibodies and whether they may be comparable to the reagins of artificially produced blisters and those of the blood serum. An attempt was made to determine whether the reagins of the burn blister fluid from a patient having burn blisters could be exhausted. One of the sensitized skin sites of one receptor was given repeated injections of cat epithelium extract. Within two days there occurred a reduction and then a lack of reactivity not only to the 0.001 but also to the 0.01 solution. At this point the site was tested with horse epithelium producing a positive result, indicating that the exhaustibility of the antibodies was specific. After a rest of eleven days, the same site reacted to the cat hair extract 0.01 solution. The work of Spain and Newell on the reagin content of artificially produced blister fluid has been confirmed. In some carefully selected cases, the artificial blister fluid could be used for performing the Prausnitz-Küstner test.

Journal of Biological Chemistry, Baltimore

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Studies on Pharmacologic Action of Coriamyrtin. A. H. Maloney, Washington, D. C.—p. 361.
*Rôle of Potassium in Epinephrine Action. W. J. R. Camp and J. A. Higgins, Chicago.—p. 376.
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Site of Action of Caffeine as Respiratory Stimulant. D. H. LeMessurier, Baltimore.—p. 458.
Antagonism Between Ephedrine Sulfate and Sodium Isoamylethylbarbiturate (Sodium Amytal) After Intracisternal Injection During Morphine-Sodium Isoamylethylbarbiturate (Sodium Amytal) Anesthesia and Ether Anesthesia. J. C. Rice and R. M. Isenberger, Kansas City, Kan.—p. 464.
Biologic Assay of "International Standard" Estrin and Certain Commercial Preparations. F. E. D'Amour and R. G. Gustavson, Denver.—p. 472.

Rôle of Potassium in Epinephrine Action.—After reviewing the earlier literature on this subject, Camp and Higgins present a further analysis of this action of potassium. They made experiments on more than 100 dogs. On the basis of these studies they reach the following conclusions: 1. Potassium effects all the changes in the systems studied that are produced by epinephrine. 2. Potassium action is obtained after decerebration, bilateral adrenalectomy, atropine and ergotoxine. 3. Potassium is responsible for the typical changes ascribed to epinephrine. 4. Potassium is liberated from the heart by vagus stimulation. 5. One of the functions of the adrenal glands is to maintain a constant distribution of potassium.

Minnesota Medicine, St. Paul

19: 559-632 (Sept.) 1936

Foreign Bodies and Use of X-Ray Examination in Their Localization and Removal. W. F. Manges, Philadelphia.—p. 559.
Surgical Aspects of Peptic Ulcer. D. Guthrie, Sayre, Pa.—p. 565.
Treatment of Diabetes Mellitus. E. P. Joslin, Boston.—p. 570.
Diagnostic Problems in Renal Ureteral Disease. A. E. Olson, Duluth.—p. 576.
Refraction of Children. E. O. Dahl, Minneapolis.—p. 591.
Bumper Fractures of Tibia. O. J. Campbell, Minneapolis.—p. 593.
*End Results of Treatment of Urinary Infections by Ketogenic Diet. H. A. Buchtel and E. N. Cook, Rochester, Minn.—p. 603.

Treatment of Urinary Infections by Ketogenic Diet.—Buchtel and Cook have recently sent questionnaires to 200 patients who had been dismissed from the clinic a year or more previously with sterile urine following treatment by means of the ketogenic diet. The average length of time since dismissal in these cases was two years. They chose patients consecutively from two groups, one group made up of patients who had been treated in 1931 and 1932, and the other made up of patients treated in the last months of 1933 and early months of 1934. This was done to see whether the changes made in the management of the diet made any difference in the end results. Patients in the first group had been kept on the diet longer, usually from three to four weeks, whereas those in the latter group had been kept on the diet usually only until two sterile cultures of the urine were obtained on successive days. In addition, the diet used in the latter group of cases contained a higher ratio of fatty acid to dextrose. Of the 161 replies received there was recurrence of the bacillary infections in only forty-two instances. Once recurrence has developed, use of the ketogenic diet at home has a definite place in the treatment. Patients can follow the diet at home quite well, especially if it has previously been followed under supervision. A ketogenic diet for home use that has been quite successful has a 4:1 ketogenic-antiketogenic ratio, which is the same as is used now at the clinic. It can be prepared and followed quite easily and has proved to be an adequate means of treatment. Fourteen of the forty-two patients who suffered from recurrence of urinary infection followed this home diet. All reported benefit; three said they were cured, eight that they were markedly benefited, and three reported moderate relief of symptoms. Two additional patients reported control of their symptoms by the use of acidifying drugs alone.

South Carolina Medical Assn. Journal, Greenville

32: 185-208 (Aug.) 1936

Facts of General Interest About X-Rays and Radium. H. Rudisill Jr., Charleston.—p. 185.
Prevention of Loss of Weight in the New-Born. J. I. Waring, Charleston.—p. 188.
President's Address. S. E. Harmon, Columbia.—p. 191.

32: 209-228 (Sept.) 1936

Pellagra and New Deal. C. J. Milling, Columbia.—p. 209.
Screw Worm Infestation. W. R. Wallace, Chester.—p. 213.
Typhus Fever. L. C. Shecut, Orangeburg.—p. 215.
Simplified Ketogenic Diet in Treatment of Bacilli Infection of Urinary Tract in General Practice. J. H. Cutchin, Easley.—p. 218.

Surgery, Gynecology and Obstetrics, Chicago

63: 273-416 (Sept.) 1936

Reaction of Bone to Invasion by Carcinoma: Pathologic and Experimental Study. A. Brunschwig, Chicago.—p. 273.
*Juvenile Tuberculosis of Kidney: Diagnosis and Treatment. C. P. Mathé, San Francisco.—p. 283.
*Glucose Tolerance as Diagnostic Aid in Jaundice. H. G. Jacobi, New York.—p. 293.
*Acute Gallbladder. F. Taylor, Indianapolis.—p. 298.
Use of Catgut in Perineum. O. W. Hess, New Haven, Conn.—p. 308.
Abdominal Symptoms Produced by Disease in Urogenital Tract. E. Beer, New York.—p. 315.
Treatment of Surgical Infections with New Chlorine Solutions. F. Young, Rochester, N. Y.—p. 318.
Anesthesia for Intrathoracic Surgery: Endotracheal and Endobronchial Technics. E. A. Rovenstine, New York.—p. 325.
Study of Ulcerations of Lower Extremity and Their Repair with Thick Split Skin Grafts. J. B. Brown, L. T. Byars and V. P. Blair, St. Louis.—p. 331.
Ambulatory Treatment of Fractures of Neck of Femur. G. L. Apfelbach and L. J. Aries, Chicago.—p. 341.
Cystocele: Its Anatomic Disturbance and Reconstruction. J. W. Davies, New York.—p. 349.
Acute Putrid Abscess of Lung: Principles of Operative Treatment. H. Neuhof and A. S. W. Touroff, New York.—p. 353.
Technical Details in Skin Grafting. J. H. Conway, New York.—p. 369.
*Midline Cerebellar Tumors ("Medulloblastoma"): Clinicopathologic Report of Cases Showing Diffuse Dissemination Throughout Central Nervous System. N. W. Winkelman, Philadelphia, and J. L. Eckel, Buffalo.—p. 372.
Portal Thrombosis Following Splenectomy for Splenic Anemia. S. W. Moore, New York.—p. 382.
Surgical Management of Prolapse of Uterus and Vagina. L. E. Phaneuf, Boston.—p. 385.

Juvenile Tuberculosis of Kidney.—Mathé emphasizes the importance of suspecting tuberculosis of the kidney in children presenting chronic cystitis, persistent pyuria and relapsing pyelitis. It occurs in infants, children and adolescents more frequently than it is believed. In fact, many patients with adult renal tuberculosis had earlier silent tuberculous lesions of the kidney in childhood which escaped attention. But with more widespread interest in urology in children and by a careful systematic routine urologic study of suspected cases, made possible by the use of the more recently perfected smaller caliber child cystoscopes, diagnosis will be made in more cases and the patients will be given the same chance for the surgical relief that has been carried out so successfully in adults. Six cases of unilateral juvenile renal tuberculosis occurring in children and adolescents are reported. The group comprises 10.3 per cent of fifty-eight patients in whom nephrectomy was performed for tuberculosis. Four are living and well eight years, six years, eleven months and three months after operation. In reviewing 4,698 cases of unilateral renal tuberculosis, the author found that this disease occurred in 565 subjects (12 per cent) aged from 1 to 20 years and that 0.42 per cent (twenty cases) occurred in infants aged from 1 to 5 years, 1.08 per cent (fifty-one cases) occurred in children aged from 5 to 10 years and 10.5 per cent (494 cases) occurred in adolescents aged from 10 to 20 years. The necropsy statistics show that the incidence is much higher (from 25 to 30 per cent).

Although clinical quiescence and autonephrectomy have been overenthusiastically hailed as spontaneous healing of renal tuberculosis, nephrectomy is the treatment of choice in the unilateral type in children as well as in adults and, if this operation is performed early enough, it is followed by a great percentage of cures.

Dextrose Tolerance as Diagnostic Aid in Jaundice.—Jacobi believes that any case of jaundice in which after the administration of 100 Gm. of dextrose orally there is a flat or an early high rise with a subsequent normal or fasting level blood sugar curve, the principal feature of which is the return of the blood sugar to a normal fasting level at the end of the two hour period, denotes a jaundice of toxic origin. In such cases operative intervention will be of no value and may add considerably to the already existing liver damage. Any case of jaundice in which, after the administration of 100 Gm. of dextrose orally, there are sugar curves the principal feature of which is the failure of the blood sugar level at the end of the two hour period to return to the normal level, indicates that the case is due either to some obstructive lesion of the common duct, such as stricture, calculus, suppuration or carcinoma, or to some such liver involvement as cirrhosis, abscess or carcinoma. As a rule other factors, both clinical and laboratory, help materially in further clarifying the situation. It is in this type of case of jaundice that early operation is definitely indicated, with the most satisfactory results obtained, of course, in cases due to calculus obstruction. Obstructive jaundice produced by carcinoma of the head of the pancreas or of the common duct certainly calls for the performance of a cholecystogastrostomy as an indicated palliative procedure. Cases of liver abscess with jaundice also give this obstructive curve. In the jaundice due to cirrhosis and carcinoma of the liver, the outlook is so hopeless, especially in the latter, that not much in the way of damage can be added to an already hopeless situation, even the performing of a laparotomy.

Acute Conditions of Gallbladder.—In reviewing the varied pathologic lesions found in 129 cases in which the diagnosis was gallbladder or biliary duct disease, it became apparent to Taylor that they should not all be classified under the single heading of acute conditions of the gallbladder. The principal lesion in most of these cases is vascular, from an occlusion or partial occlusion of the venous return from this viscus. Infection plays a secondary part or, in many cases, may be completely absent. This feature contrasts sharply with the usual lesion of acute appendicitis in which the reverse is true. The 129 cases have been grouped according to morphologic observations in the gallbladder as acute edematous, acute suppurative and acute gangrenous. In analyzing the signs and symptoms of patients from these separate groups, it was found that there was no definite criterion by which they could be differentiated. There was a marked overlapping of signs and symptoms of patients with the acute edematous type, from which no complications might be expected, with the other two more serious groups. But one aid in making this differentiation was noted: the white blood cell count. This, in general, varied directly with the severity of the lesion. However, it was misleading and bore no relation to the pathologic condition in more than 10 per cent of the cases. The clinical features of the disease often bear no relation to the severity of the pathologic process. The mortality for the entire series was 16.3 per cent. Patients operated on the first four days after acute onset gave a mortality of approximately 5 per cent. Of those operated on five or more days after onset, 23.8 per cent died. The perforating and gangrenous lesions have a higher incidence in those of advanced years. Therefore, age is no excuse for delaying operation. More than half the cases may be expected not to improve or become worse while being observed in the hospital. No case is so urgent that preoperative administration of adequate amounts of dextrose solution can be neglected. It would seem best to remove an occasional edematous gallbladder, in the doubtful case, rather than run the risk of the more radical policy of watchful waiting.

Midline Cerebellar Tumors ("Medulloblastoma").—Winkelman and Eckel report three unusual cases of midline cerebellar tumor, with dissemination through the spinal fluid. In the first case the patient had a definite remission for a period of nearly two years after decompression and high voltage roentgen therapy. There gradually developed the signs and symptoms of local recurrence and progression, as well as diffuse involvement of the central nervous system. At necropsy there was marked distention of the fourth ventricle by the tumor with invasion into the surrounding structures, and complete filling up of the entire cerebral ventricular and subarachnoid spaces by the tumor tissue. Secondary invasions into the adjacent cerebral tissue were noted throughout. In the second case complete extirpation of the local cerebellar lesion had been done two years prior to the onset of a peculiar picture of spinal cord disease with root involvement. Necropsy showed marked overfilling of the spinal subarachnoid space with tumor cells of the medulloblastic type with invasion into the spinal cord substance. The spinal cord itself was enlarged to nearly five times its usual diameter. Loosening of tissue cells and dropping into the spinal subarachnoid space were probably the beginnings of the new growth within the spinal cord. In the third case the clinical course was typical. Local recurrence was present with complete distention of the fourth ventricle and invasion into adjacent structures. Here again the distended spinal subarachnoid space was filled with tumor tissue with invasion into spinal cord substance at various points. Compression of the spinal cord was present in addition. Scattering of tumor cells into the subarachnoid space as the result of operative manipulation probably accounts for much of the wide dissemination that occurs within the subarachnoid space, and especially within the spinal canal. Cure of the local lesion in medulloblastoma is not sufficient to eradicate the tumor cells completely from the central nervous system. Care must be taken not to loosen portions of the tumor and permit them to drop into the subarachnoid space.

Virginia Medical Monthly, Richmond

63: 329-394 (Sept.) 1936

Hemorrhage in Pulmonary Disease. Elizabeth C. Cole, Norfolk.—p. 329.
Diagnosis and Treatment of Hemorrhage from Gastric-Intestinal Tract. F. C. Rinker, Norfolk.—p. 332.
Hemorrhage from Urinary Tract. C. J. Devine, Norfolk.—p. 334.
The Problem of Uterine Hemorrhage in Gynecology. E. Lowenberg, Norfolk.—p. 337.
Gonadotropic Factors and Sex Hormones. M. Ehrenstein, Charlottesville.—p. 341.
Anencephalus—Exhibit of Four Fetuses—with Case Reports. W. K. Lloyd, Christiansburg.—p. 349.
Optic Retrobulbar Neuritis of Nasal Origin. C. M. Miller, Richmond.—p. 351.
Fractures of Hip. M. H. Todd, Norfolk.—p. 353.
Nonunion of Fractures of Humerus. D. M. Faulkner, Richmond.—p. 355.
Congenital Absence of Right Fallopian Tube and Ovary. W. P. Burton and W. J. Ellis, Covington.—p. 359.
Social Significance of Syphilis. E. S. Williams, Richmond.—p. 360.
Practical Measures for Detecting Cases of Syphilis. E. E. Barksdale, Danville.—p. 364.
Syphilis and Gonorrhea as Major Public Health Problems. R. A. Vonderlehr, Washington, D. C.—p. 366.
Air Embolism and Pleural Shock. D. L. Anderson, Catawba Sanatorium.—p. 371.
*Simple Method for Infant Feeding: Well Adapted to Rural Districts. J. H. Hiden, Pungoteague.—p. 375.

Simple Method for Infant Feeding.—In his search for a common-sense way of treating the great majority of babies in the summer months that can easily be handled by the average family physician and can be carried out by the average mother in moderate financial circumstances, it occurred to Hiden that about half of the whole world lived almost entirely on rice and that ages on ages in the world's experience had definitely proved that rice as a food was especially well adapted to the people who lived in the hot climates of the world. Therefore he selected condensed milk, added to it the required amount of boiled water to make it the right strength for any given infant and added to this one fourth of its quantity of boiled rice in the form of a thin gruel, about as thick as cream. The quantity of this mixture for each feeding is regulated to suit the age and weight of the infant. This makes a practically sterile diet, easily digested, highly nutritious and sufficiently balanced to meet the requirements in the great majority of cases. In addition to this diet the child is allowed a little orange juice two or three times a day. When oranges cannot be secured, a little tomato juice may be substituted. For the last twenty years the diet has given the author far better results than any other method of infant feeding that he has ever tried.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

48: 399-472 (Aug.-Sept.) 1936

*Lymphogranulomatosis Benigna in Light of Prolonged Clinical Observations and Autopsy Findings. J. Schaumann.—p. 399.

Necropsy in Benign Lymphogranulomatosis. — Schaumann gives detailed reports of four necropsies in cases of the disease. Three of them had been thoroughly studied clinically. In the fourth the diagnosis was arrived at subsequent to death. The observations show the genetic identity of lupus pernio, Boeck's nodular and Boeck's disseminated miliary sarcoid type, and likewise the occurrence of the disease without skin manifestations. The dermatologic diagnosis in case 1 was lupus pernio, in case 2 disseminated miliary sarcoids (isolated or grouped in arcs and rings) and in case 3 Boeck's nodular sarcoid transformed into lupus pernio, and in all three cases there was found to be present benign lymphogranulomatosis. In case 4 there were no skin lesions; benign lymphogranulomatosis was an accidental discovery in the necropsy on a patient who had died of influenza. The author believes that benign lymphogranulomatosis is a generalized disease with predilection for the lymphohematopoietic apparatus, without or with skin manifestations, and that the disease is probably tuberculous. The disease may cause death in its character as benign lymphogranulomatosis, as a result of the advanced destruction of the hematopoietic apparatus, owing to its localization in vital organs or to cardiac asthenia caused by the increased resistance which the pulmonary lesions offer to the work of the heart. The most usual cause of death is possibly a classic tuberculosis arising in the course of benign lymphogranulomatosis.

British Journal of Physical Medicine, London

11: 81-100 (Sept.) 1936

Manipulation in Spinal Curvatures. E. Cyriax.—p. 83.
Physical Treatment of Industrial Injuries. J. Williamson.—p. 86.
Thermionic Valve as Generator of H. F. Currents. B. D. H. Watters. —p. 88.
Physical Therapy of Rheumatic Diseases. L. de Pap.—p. 90.

British Journal of Radiology, London

9: 559-630 (Sept.) 1936

Complications of Posterior Gastrojejunostomy. S. C. Shanks.—p. 559.
Photographic Action of X-Rays. G. E. Bell.—p. 578.
*Factor of Importance in Radiosensitivity of Tumors. J. C. Mottram.—p. 606.
Some Technical Points in Dental Radiography. S. Colyer.—p. 615.
*Action of Gamma Rays on Nerve Cells of Auerbach's and Meissner's Plexus: Note. H. A. Colwell and R. J. Gladstone.—p. 620.

Radiosensitivity of Tumors. — Mottram avers that cells forming the margins of carcinomatous cell masses are more sensitive to gamma radiation than the central cells. A reasonable explanation for this is that the marginal cells have a more abundant oxygen supply, being near the blood vessels, and are for this reason more radiosensitive, since cells under anaerobiosis are radioresistant. If this be the case, carcinomas having small masses of cells should be more radiosensitive than those with large masses of cells. This deduction is considered, and evidence in its favor discovered. The question of the importance of the macrophage reaction to be seen in tumors regressing after irradiation is discussed, and it is concluded that they play no more important part than the phagocytosis of cells killed by radiation. Repeated doses of radiation should be spaced so as always to catch the tumor in a radiosensitive state, and irradiation should be withheld during times of radioresistance, following previous irradiation. The growth of tumors will supply a measure of their radiosensitivity during life, growth corresponding with sensitivity, and regression with resistance.

Action of Gamma Rays on Auerbach's Plexus.—Colwell and Gladstone applied a composite radium applicator, made up of several containers, to the abdomen of young rats narcotized with ether and urethane for two hours. Four of the tubes, each containing 13.3 mg. of radium element, had a wall thickness of 1 mm. of platinum: the wall thickness of the rest (five) was 0.5 mm. of platinum. The total radium content of the applicator was 123.2 mg. of radium element. At the end of the exposure the rat was given a subcutaneous injection of physiologic solution of sodium chloride and replaced in its cage. A control rat was similarly narcotized and given the physiologic solution. Twenty-four hours later the animals were killed with ether, and when the abdomen was opened the intestine of the irradiated animal was found to be swollen and the peritoneal surface reddened. Portions of the intestine were removed, placed in Bouin's fluid, and, after the usual preliminaries, sections were stained in hematoxylin and eosin. Specimens from the intestine of the control animal (which appeared normal) were similarly treated for comparison. The condition of the nerve cells in the control specimens was, like that of the secretory epithelium and other tissues, quite good. In the irradiated specimens the ganglion cells are unequally or feebly stained; the outlines of the cell bodies are irregular and the granules ill defined or absent. The cell body is frequently shrunken and surrounded by a clear space. The nucleus is often irregular in outline and feebly stained. The nucleolus is often reduced to an irregular speck or may have disappeared completely, and the chromatic material is often broken down into minute granules or appears to have undergone solution. The majority of the nerve cells appear to be irreparably damaged. With the dosage employed, the nerve cells of the intrinsic sympathetic nervous system of the small and large intestine are extensively and badly damaged. Though a few cells seem to have escaped, the general destructive effects due to the irradiation are evident in the nerve cells as well as in the intestinal epithelium, lymphoid tissue, vascular system and unstriped muscle.

British Medical Journal, London

2: 413-448 (Aug. 29) 1936

Scope of Teaching and Research in Anatomy. W. E. Le G. Clark. —p. 413.
Use and Abuse of Manipulative Surgery. A. S. B. Bankart.—p. 416.
Treatment of Chronic Rheumatism. H. L. Tidy.—p. 418.
Factors Predisposing to Respiratory Disease in Preschool Child. A. D. Bell.—p. 420.
*Leptospiral Jaundice, Following Bathing Injury. J. D. Lendrum.—p. 423.

2: 449-522 (Sept. 5) 1936

Examinations as Path to Freedom. C. M. Wilson.—p. 449.

Leptospiral Jaundice, Following Bathing Injury. — Lendrum reports a severe case of icterohemorrhagic spirochetosis. The disease was reproduced with typical lesions in guinea-pigs from two separate specimens of urine and from infected guinea-pig tissue. The typical guinea-pig lesions leave no doubt as to the diagnosis. In sections made from the infected guinea-pigs, several suggestive fields were seen in the liver, kidneys and lungs but could not be definitely identified. The source of infection appeared to be from the canal mud through the skin by means of the break caused by a splinter, the skin being an accepted port of entry. The patient always entered the water by diving. The patient, questioned afterward, was positive that he had never swallowed any of the water and stated that he had bathed in the same canal, at about the same site, on many previous occasions, the only difference on this occasion being that the splinter entered his foot. If the skin is accepted as the port of entry, the incubation period of the present case was only two days. The disease was typical. There was the sudden onset of headache, limb pains, vomiting and fever, followed by "red eyes" and jaundice, with an associated pyelonephritis. There was no herpes or sore throat. The pains of the limbs were distressing; they came at first in spasms and later whenever he was touched. He was unable to move his legs at one time, and the tendon reflexes were a long time in returning. The first symptom of relapse was on the seventeenth day. There was a return of all symptoms, pain being referred to the back rather than to the limbs; but there was no increase of jaundice. Albuminuria was present from admission until the forty-ninth day, except on the fifteenth, sixteenth and seventeenth days, just before the relapse, on which three days the urine was alkaline. Pleurisy developed on the eleventh day. Neutralization of the urine when looking for leptospirae is advocated by Morgan and Brown. Successful guinea-pig inoculations were performed, first with a urine which had been neutral in the twenty-four hour specimen immediately preceding, and the second with an alkaline urine. All

other urine inoculations were unsuccessful and were with an acid urine. The administration of potassium citrate or some such preparation is necessary if successful inoculations are to be made from urine. There was a progressive anemia up to the twenty-fifth day. The hemoglobin descended to 42. No high blood ureas were recorded. The highest figures were 48 mg. per hundred cubic centimeters on the fifteenth day, and 50 mg. during the relapse. The nephritis appears to leave no permanent effects. The boy is well and working at present. The mercury bichloride sulfosalicylic acid test for tuberculous meningitis appears to be not infallible, as a positive result was obtained from both specimens of cerebrospinal fluid examined.

East African Medical Journal, Nairobi

13: 129-162 (Aug.) 1936

Schistosomal Cirrhosis and Splenomegaly in Central Kavirondo District of Kenya Colony. E. A. Trim.—p. 130.

Tick Typhus in Eastern Province of Uganda: Note. L. J. A. Loewenthal.—p. 141.

Benign Tertian Malaria Associated with Urticaria: Unusual or Obscure Case. J. R. Davies.—p. 146.

Abortus Fever: Case. O. E. S. Lubulwa.—p. 148.

Edinburgh Medical Journal

43: 545-608 (Sept.) 1936

*Spondylolisthesis: Description of New Method of Operative Treatment and Notes of Ten Cases. W. Mercer.—p. 545.

Some Modern Problems Connected with Cerebrospinal Fluid. J. G. Greenfield.—p. 573.

Causation, Pathology and Therapeutics of Electric Injuries. S. Jellinek.—p. 587.

Neglected Aspect of Medical Education. H. S. D. Garven.—p. 593.

Spondylolisthesis.—Mercer asserts that, in spondylolisthesis, effective treatment is entirely mechanical, since the symptoms are due to a vertebral displacement which is producing overstretching and undue tension of the ligaments surrounding the vertebrae. The author places the patient on his back and raises the table at its lower end to produce an exaggerated Trendelenburg position. A long midline incision is made to just above the umbilicus. The abdominal contents are packed off from the area of operation, and a self-retaining retractor is inserted. The subluxated vertebra is inspected and its relation to the iliac vessels is ascertained. The gap between the sacrum and the slipping vertebral body is exposed by dividing the posterior peritoneum over it and ligating some small veins and the middle sacral artery, and freed of overlying fatty fibrous tissue with a gauze swab. An osteotome is driven in an anteroposterior direction into the lower margin of the fifth lumbar vertebra an eighth of an inch from its lower edge, and into the upper margin of the sacrum an eighth of an inch from its upper edge, producing a rectangular hole after the pieces of bone and the intervertebral disk have been removed. Autogenous bone grafts are taken from the crest of the ilium to wedge into this gap. The grafts are hammered tight into the gap between the sacrum and the fifth lumbar vertebra. To avoid springing out of the wedges, in addition to screwing the grafts in the operation is usually carried out with the patient in a posterior plaster shell. The patient remains in the shell for four months and then lies free from restraint in bed for another month. Thereafter he is allowed up in a Goldthwaite brace.

Glasgow Medical Journal

8: 49-146 (Aug.) 1936

*Diagnosis and Treatment of Bone Sarcoma. W. B. Coley.—p. 49.

Disease of the Antrum of Highmore Operated on by Caldwell-Luc Radical Operation: Review of One Hundred Consecutive Cases. W. S. Syme.—p. 87.

Diagnosis and Treatment of Bone Sarcoma.—Coley points out that bone sarcoma has a predilection for youth and that the majority of cases occur between the ages of 15 and 30 years. The first symptom of bone sarcoma is usually pain and in the majority of cases pain is noticed some weeks or months before a swelling or a tumor is discovered. In a few cases of acute traumatic malignancy the sarcomatous tumor may begin to develop within a week or less, but these cases are rare. The pain is apt to be worse at night, and, in spite of occasional short remissions, it usually increases steadily in severity. Continued pain in a bone that cannot be explained should always call for roentgen examination. In the majority of malignant bone tumors, especially of the osteogenic type, the site of origin is one of the extremities. The joint is rarely involved in the early stages. The best explanation of this localization of bone sarcoma would seem to be that sarcoma is most likely to develop at those points which are most subject to trauma or strain. There is probably no bone in the body more likely to be injured than is the knee; hence the highest percentage of bone sarcomas develop in the femur, the most of these in the lower end, about the knee. In discussing the physical signs of bone sarcoma, the author says that a dilatation of the cutaneous veins nearly always occurs in sarcoma, but not in the early stages. Other factors to be regarded are the consistency, location, size and temperature of the tumor. After discussing the roentgen diagnosis and biopsy, particularly the dangers of the latter, the author shows that surgical treatment alone or combined with Coley's toxins is superior to irradiation. He takes up the therapeutic value of Coley's toxins (the toxins of erysipelas and Bacillus prodigiosus). He relates how he arrived at this method of treatment and cites the results that were obtained with the administration of the toxins of erysipelas and Bacillus prodigiosus.

Guy's Hospital Reports, London

86: 249-376 (July) 1936

The Hunterian Oration on John Hunter to John Hilton. C. H. Fagge.—p. 249.

Influenza. R. E. Smith.—p. 269.

Etiology of Cancer of Stomach: I. Factors Involved in Varying Incidence in Different Classes and Different Countries. G. A. M. Lintott.—p. 293.

Id: II. Comparison of Diet and Dental Conditions of the English and the Dutch, with Especial Reference to Gastric Irritants. W. E. Herbert and J. S. Bruske.—p. 301.

Relation of Pulpless Teeth to General Disease, with Especial Reference to Periapical Rarefaction. A. Bulleid.—p. 309.

Recurrent Swelling of Parotids: Two Cases. R. S. B. Pearson.—p. 333.

Leukemia Simulating Acute Rheumatism and Still's Disease: Case. E. T. Conybeare.—p. 343.

Laryngeal Vertigo Syndrome. H. Barber.—p. 350.

Acute Peritoneal Irritation: Cases Showing Paths Taken by Fluids in Peritoneum. C. G. Pantin.—p. 354.

Epituberculosis with Terminal Tuberculous Meningitis with Postmortem Findings: Case. H. C. Cameron and S. De Navasquez.—p. 366.

Indian Medical Gazette, Calcutta

71: 437-500 (Aug.) 1936

Experimental Infection of Dogs with Dracontiasis. V. N. Moorthy and W. C. Sweet.—p. 437.

Studies on Action of Antimalarial Remedies on Monkey Malaria: Relationship Between Concentration of Atabrine in Circulating Blood and Parasite Count. R. N. Chopra, S. K. Ganguly and A. C. Roy.—p. 443.

Intra-Uterine Vaccinia in Pregnant Animals. G. H. Blaker.—p. 446.

Cholera and Intestinal Helminths. P. A. Maplestone and V. N. Bhaduri.—p. 449.

*Simple Method of Bronchoradiography. R. Viswanathan and P. Kesavaswamy.—p. 450.

Study of One Hundred Cases of Dermatitis. P. A. Maplestone and L. M. Ghosh.—p. 451.

Description of Old Type of Privy. N. G. Pandalai.—p. 458.

Village Mosquito Trap. R. N. Gore.—p. 460.

Simple Method of Bronchoradiography.—Since August 1935, when their attention was drawn to the article by Forestier and Leroux describing the new pernasal method of administering iodized poppy-seed oil for visualizing the bronchial tree, Viswanathan and Kesavaswamy have adopted this method in a modified form in sixty cases with satisfactory results. They were successful in all the cases except in one, in which the patient swallowed the whole quantity of the iodized oil, not allowing a drop to go into the bronchi. The method consists in the oil and previously to it the anesthetic being injected directly into one nostril with an ordinary glass syringe exclusive of any tip or catheter of any sort. The paraphernalia concomitant with an operation are no longer required, as is the case when the cricothyroid route is chosen for the injection. Only a 20 cc. syringe and a 2 cc. syringe, both without needles, a piece of gauze and 1 per cent cocaine solution are required. There is no danger of injecting the oil into the cellular tissues, nor is there any fear of breaking needles inside the trachea. The patient may swallow the iodized oil, in which case a stomach wash may be needed.

Lancet, London

2: 413-474 (Aug. 22) 1936

Lung Abscess. J. Maxwell.—p. 413.
Treatment of Severe Diabetes in Children with Protamine Insulinate. T. I. Bennett and A. M. Gill.—p. 416.
*Treatment of Lymphadenoma with Sensitized Vaccine of Elementary Bodies. E. C. Warner.—p. 417.
Thrombophlebitis in Obstetrics and Gynecology. S. K. Westmann.—p. 421.
Results of Operative Treatment in Carcinoma of Breast. W. H. G. Jessop.—p. 424.
*Sterile Mating. V. B. Green-Armytage.—p. 426.

Treatment of Lymphadenoma with Vaccine of Elementary Bodies.—Warner points out that in a previous paper Gordon summarized the experimental evidence which strongly suggests that the "elementary bodies" which he has isolated are the causal agents of lymphadenoma. To establish this beyond doubt is at present impossible. Since the human species is the only one known to be infected with lymphadenoma, it is of interest to see how far, in the present state of knowledge, cases of lymphadenoma can be treated with a serum or vaccine prepared from these elementary bodies. For the past three years, work has been proceeding in collaboration with Gordon to test the value of his sensitized vaccine as a curative agent. The clinical material used has been subject to a careful scrutiny to ensure a correct diagnosis. The criteria to be fulfilled to ensure this have been: 1. From a clinical standpoint, fairly typical cases, with lymphatic glandular enlargement, often pyrexia, and a blood count compatible with the diagnosis. 2. A histologic picture showing the changes characteristic of lymphadenoma. 3. A positive result to Gordon's intracerebral inoculation method. This test, when applied to lymphatic glands, is now becoming widely recognized as valuable proof of lymphadenoma, as a characteristic syndrome is produced in the rabbits. In discussing the effects of the vaccine the author cites several cases and says that the doses of the sensitized vaccine should be determined on the patient's reactions to them. In acute or recent cases the most satisfactory initial dose seems to be from 0.05 to 0.1 cc. of one twenty-thousandth vaccine, and depending on the amount of reaction obtained, this is either repeated or increased to from 0.1 to 0.2 cc. at the end of five, six or seven days. In any patient with pyrexia, or recent pyrexia, probably owing to the impossibility of obtaining complete sensitization of the elementary bodies in the vaccine, there is a maximal dosage which should rarely be exceeded. This varies in individual cases, but it is probably unwise to exceed a dose of 1 cc. in children or 2 cc. in adults. The optimal dose may be repeated weekly for long periods. In chronic cases an initial dose of 0.25 cc. is usually safe, and this may be increased usually by 0.25 cc. at the same intervals of time. If the vaccine is given early in cases which are not too advanced, the symptoms are greatly benefited.

Sterile Mating.—Green-Armytage considers the following necessary in an investigation in every case of sterile mating: (1) a complete medical history of the life and habits of both husband and wife; (2) a complete physical examination of both parties; (3) an expert examination of the semen; (4) a p_H test of the reaction of the vagina and an investigation of the cervix; (5) a demonstration, preferably by roentgenogram, of patency of the tubes, and (6) an investigation of the premenstrual endometrium and endocrine factors. In discussing the examination of the male, the author stresses the importance of repeated examinations of the semen. He says that genital hypoplasia is by far the commonest single cause of primary sterility in women. It was responsible for 44 per cent of cases in his published series. Perhaps the most constant feature, however, is delayed onset of menstruation which later is irregular, painful or scanty. In women with this history, abortion is common. Treatment is disappointing, for it is not the ovary that is at fault but the anterior pituitary gland. In some cases the author found thyroid gland and calcium useful, but there seems little doubt that, in the future, gonadotropic substances containing active anterior pituitary hormone will be the recognized means of treatment. After discussing the p_H of the vaginal secretion, the author gives his attention to tubal occlusion. Twelve years' experience with Rubin's insufflation test and salpingograms with iodized oil has confirmed the author's view of the rarity of sterility due to occlusion and has also convinced him that the salpingogram has much more therapeutic and diagnostic value than insufflation. If obstruction is at the isthmus, operations, however careful, are almost always useless; but if it is in the ampullary or fimbriated portion, there is at least a 20 per cent chance of success. Lastly the visible and invisible pattern of the endocrine glands must be considered. The sedentary city worker and many young women with menstrual irregularities have a low basal metabolic rate with subthyroidism, probably dietetic in origin. It is perhaps significant that the adoption of an infant, with its release of maternal feelings, is often sufficient to stimulate normal function and so cause conception. There is evidence, however, that certain women menstruate regularly, but without ovulation. In these cases the secretory or premenstrual phase, dependent on the hormone progestin secreted by the corpus luteum, is absent. The treatment of this anovular menstruation is promising. The author gives four intramuscular injections of 100,000 units of theelin during the first two weeks of the cycle and three injections of gonadotropic substance of pregnancy urine (100 rat units) during the last ten days, beginning on the seventeenth day.

Medical Journal of Australia, Sydney

2: 171-202 (Aug. 8) 1936

Nonspecific Therapy and Vegetative Regulation of Body. C. S. Hicks.—p. 171.
Binasal Hemianopia: Report of Three Cases. L. Duncan.—p. 179.
Rôle of the Ophthalmologist in Localization of Cerebral Tumors. J. B. Hamilton.—p. 183.

Practitioner, London

137: 129-256 (Aug.) 1936

Some Late Effects of Venereal Diseases. L. W. Harrison.—p. 129.
Diagnosis and Treatment of Acute or Early Syphilis. E. T. Burke.—p. 141.
Diagnosis and Treatment of Local Complications of Gonorrhea in the Male. V. E. Lloyd.—p. 152.
*Gonorrhea in Women. Margaret Rorke.—p. 163.
Virus Diseases of External Genitals and Chancroid. R. Lees.—p. 177.
Venereal Disease in Children. F. R. Curtis.—p. 186.
Cancer of Rectum. C. Gordon-Watson.—p. 197.
Further Examples of Misuse of Common Remedies. J. W. Linnell and C. Hoyle.—p. 209.
Syringing the Ear. C. Keogh.—p. 214.
Acute Aseptic Meningitis. C. A. Birch.—p. 219.
Diagnosis of Difficult Cases by Psychologic Methods. S. B. Hall.—p. 225.
General Practice: No. II. Choosing a Practice. I. G. Briggs.—p. 235.

Gonorrhea in Women.—Rorke states that, before one considers the discharge of a patient after treatment for gonorrhea, the films and cultures should be negative after three succeeding menstrual periods. She must also be free from signs or symptoms of gonorrhea and must have been off treatment for three or four weeks wholly before final testing after a provocative. The best provocative is alcohol—gin or other spirit taken the night before the films and cultures are taken in the morning. The local congestion resulting from the use of alcohol will astonish many practitioners. If this provocative is not possible, painting the urethra and cervix with 25 per cent strong protein silver and taking films and cultures thirty-six hours later make quite a fair provocative. The blood complement fixation test should also be made and be negative. Should it be positive, even if films and cultures are negative, it is necessary to consider the possibility of a focus of infection elsewhere. If the patient's "cure" is to be other than a mockery, it must be ensured that the husband or consort is clear of infection before the patient resumes relationships.

Japanese Journal of Obstetrics & Gynecology, Kyoto

19: 327-428 (July) 1936

Study on Gases in Umbilical Blood. M. Noguchi.—p. 328.
Experimental Study on Changes of Fowl Organs by O-Amido-Azo-Toluol. S. Aoji.—p. 337.
Maximal Number of Uterine Contractions. H. Hori.—p. 348.
Supplementary Informations on Culture of Cancer of Human Uterus in Vitro. H. Hori and Y. Esaki.—p. 351.
Experimental Study on Effect of Rays of Various Wavelengths to Malignant Tumors. Y. Esaki.—p. 358.
Biologic Changes in Magnetic Field. T. Saito.—p. 381.
Experimental Study on Effect of X-Rays to Metastasis of Malignant Tumor, Especially in Bones: Part I. Metastasis of Transplanted Rabbit Sarcoma, Especially the Occurrence in Bones. T. Yamamoto.—p. 388.
Effect of Functional Abnormality of Maternal Thyroid to Genital Gland of Female Fetus. T. Tanioka.—p. 393.

Bull. Assoc. Franç p. l'Étude du Cancer, Paris

25: 591-668 (June) 1936

*Place of Ablation of Grafted Tumors in Production of Metastases. G. Roussy, C. Oberling and M. Guérin.—p. 592.
Study of Myelosarcoma of Cervix. L. Berard, J.-F. Martin and P. Ponthus.—p. 611.
New Diagnostic and Therapeutic Problem of Cancer: Appearance of Primary Lung Cancer After Cancer of Uterus. R. Huguenin, P. Brian-Garfield and Odette Boucabeille.—p. 621.
Three Successive Primary Cancers in Same Patient. Nemours-Auguste, David and Bonhomme.—p. 629.
Lymphosarcoma of Rectum Appearing Three Years After Lymphosacoma of Both Tonsils. F. Bertillon and M. Liberson.—p. 634.
Roentgen Therapy of Nevocarcinomas. J. Coste.—p. 641.
Iso-Electric Point of Blood Serum in Healthy and Cancerous Subjects. M. Faguet.—p. 645.
*Authentic Observations of Spontaneous Transmission of Cancer from Man to Man. I. Balacesco and S. Tzovaru.—p. 655.

Ablation of Grafted Tumors and Metastases.—Roussy and his collaborators have recently reported a study of the behavior of different tumors after ablation. For control purposes it was necessary to determine exactly the proportion of spontaneous metastases occurring with the various tumors without ablation. Thus, for Jensen's sarcoma they noted 8.1 per cent of spontaneous metastases, but actually for control purposes 25 per cent is a more accurate figure. These investigators then removed the tumor from more than 200 rats with grafted Jensen sarcomas. The removals were partial or total and were performed on tumors of different sizes, but in the majority of instances of large size. Total ablations were carried out on 143 rats. Sixty-three of these remained cured, thirty-one had local recurrences, thirty-five had recurrences and metastases and fourteen showed metastases alone. Thus, metastases were noted in 34 per cent of the total. Partial ablations were performed on sixty-seven rats, of which number thirty-eight developed metastases. On the whole, similar observations were made with other tumors, such as the Flexner-Jobling carcinoma and Murray carcinoma of the mouse. These investigations demonstrate that the origin of metastases after excision of grafted tumors depends on a number of factors including the operative act itself and the local and general disorders that it engenders, both of which are factors that favor the proliferation of cancerous cells. Furthermore, the removal of a tumor favors the proliferation of the remaining tumor cells, although the mechanism of this phenomenon remains unknown. It is probably complex and does not depend solely on the nutritive factor. It must also be realized that ablation can favor the production of metastases by prolonging the duration of evolution of a tumor. It is important, the authors believe, to determine the different behavior with regard to metastases of different types of grafted tumors. The results obtained can apply only to those tumors which were examined and cannot be carried over to other grafted tumors or spontaneous human cancers.

Spontaneous Transmission of Cancer.—Balacesco and Tzovaru describe an ulcerated carcinoma of the breast transmitted spontaneously to the lips of a nursing infant, probably by the mechanism of grafting by direct contact. The histologic diagnosis of the cancer of the mother was a trabecular adenocarcinoma infiltrating the breast and having zones of scirrhous transformation. The connective tissue showed necrotic areas and ganglionic metastases. The histologic diagnosis of the tumor of the infant's lip was fusiform sarcoma. The second tumor, according to the authors, was obviously not of the same structural characteristics as the tumor of the mother. The interval elapsing before the development of the second tumor was about eleven months. The difference in character of the two tumors may lead to question as to the identity of origin. The question of transformation of an epithelioma into a sarcoma has served as the subject for prolonged discussions and controversies. It is probable, however, that, along with the epitheliomatous evolution of grafted epithelial cells, a sarcomatous evolution may also be produced, dependent either on the conjunctival element of the graft or on the stroma furnished by the tissues of the host. The latter explanation remains the choice of the authors.

Journal d'Urologie Méd. et Chirurgicale, Paris

42: 193-308 (Sept.) 1936

Evolution of Kidneys After Ablation of Renal Calculi. Marion.—p. 193.
Renal Lithiasis as Sequel to Rupture of Ureter by Pelvic Fracture. Gayet.—p. 205.
Must One Operate for Cancer of Prostate? André.—p. 212.
Neoformations of Neck of Bladder in Women. M. Heitz-Boyer.—p. 216.
Lithotrity. E. Michon.—p. 252.
*Prostatic and Prostatectomy Hemorrhages. O. Pasteau.—p. 256.
Conduct in Case of Abortive Treatment of Missed Gonorrhea. J. Janet.—p. 262.
Extravesicular Anastomoses of Ureter in Women. P. Malgras.—p. 269.

Prostatic Hemorrhages.—Pasteau believes that hemorrhage from the prostate occurs much more frequently than is generally believed. Traumatism is frequently responsible, but spontaneous hemorrhage is far from rare. The most important method of diagnosis of prostatic hemorrhage is furnished by catheterization. The most important aspect of treatment consists in avoidance of trauma so that the prostate may not be injured. However, once bleeding has set in, complete removal of the clot by aspiration becomes necessary. If bleeding continues in spite of these measures, suprapubic cystotomy must be performed.

Presse Médicale, Paris

44: 1417-1432 (Sept. 9) 1936

*Sugar Therapy in Intoxication by Mushrooms. L. Binet and J. Marek.—p. 1417.
Parathyroids and Diabetes. J. Olmer and J.-E. Paillas.—p. 1418.

Sugar Therapy in Mushroom Poisoning.—The marked hypoglycemia reported as occurring in mushroom (Amanita phalloides) poisoning led Binet and Marek to the experiments reported in this paper. The dry powder of the mushroom re' ins its toxicity for a long time and it was this substance that served as the experimental injectable preparation. They used from 10 to 20 mg. of dried mushrooms per kilogram of body weight of the animal by subcutaneous injection. When given orally, 0.1 Gm. per kilogram of body weight was used. When rabbits were injected with this substance, no disturbance appeared for eight or ten hours, after which a profound asthenia set in. Frequently repeated convulsions would occur after this period. Death usually occurred about the twenty-fourth or thirty-sixth hour after the injection. Both in these animals and in dogs there was a marked fall in the blood sugar after the first four hours. The convulsions observed in the rabbits were apparently due to hypoglycemia, which therefore suggests a possible corrective method. To another series of rabbits given similar doses of dried mushrooms, sugar also was administered. After various trials the administration of 20 cc. of a 4 per cent solution of dextrose intravenously four or five times a day was adopted. The first dose was given eight or ten hours after the injection. With this method, nine out of twelve rabbits survived, although none of the untreated ones lived. Of the animals treated with sugar and living, there was a marked loss of weight later in spite of a rapid increase in quantity of food taken. All showed glycosuria and albuminuria between the third and sixth days, and three animals also showed an increase in blood urea. Although these observations were all of an experimental nature, the authors believe that the sugar method of treatment offers a safe and efficacious method of treating mushroom poisoning.

Schweizerische medizinische Wochenschrift, Basel

66: 853-884 (Sept. 5) 1936

Lipoid Nephrosis and Its Treatment. F. Rathery.—p. 853.
Natural Self Protection and Regulation in Circulation. E. P. Pick.—p. 860.
Results of Bronchospirometry. H. C. Jacobaeus.—p. 865.
*Influence of Allergy on Tuberculosis. P. Schwartz.—p. 874.

Influence of Allergy on Tuberculosis.—Schwartz describes animal experiments in which it is proved that every infection with tubercle bacilli produces an increase in the sensitivity toward new specific infections. If the infected organism at the height of its sensitivity is exposed to hematogenic or exogenic dissemination of tubercle bacilli, there develops a shocklike symptomatology, which frequently leads to a fatal termination. However, if the organism servives the crisis that is produced by the hypersensitivity reaction, the crisis may be

the beginning of a process of healing. The author applies the experimental observations to human pathology. In giving his attention to the tuberculosis in children he takes up the primary complex, hematogenic dissemination and bronchial dissemination. He says that tuberculosis in adults occurs in the same forms as during childhood.

Archivio di Patologia e Clinica Medica, Bologna

16: 295-424 (Aug.) 1936

Clinical Value of Venous Pulse Especially in Thyroid Hyperfunction. F. Introna.—p. 295.
Lipoid Nephrosis: Cases. G. Ferro-Luzzi and F. Romeo.—p. 329.
Adenocarcinoma of Jejunum and Ileum: Case. C. Manzini.—p. 349.
*Polypeptidemia in Blood and Liver Diseases. G. Benedetti.—p. 380.
Combined Valvular Insufficiency, Endocarditis and Frosted Liver: Case. A. Luisada.—p. 404.

Polypeptidemia in Blood and Liver Diseases.—Benedetti found normal polypeptidemia analogous to that reported in the literature (2.5 mg. per hundred cubic centimeters of blood) but a normal index of deamination of 0.08, which is lower than that previously reported, varying between 0.1 and 0.2. The author reports the results of determinations of polypeptidemia in blood and liver diseases and concludes that hyperpolypeptidemia appears in blood diseases if they are complicated by hepatorenal disturbances or fever or if they are associated with hemolysis. In grave forms of anemia secondary to hemorrhage and in those associated with hydremia, frequently there is a relative hypopolypeptidemia. In grave insufficiency of the liver, polypeptidemia is increased. In ascitic cirrhosis the improvement of circulation and digestive absorption, following paracentesis, associates itself with constant diminution of hyperpolypeptidemia. According to the author, polypeptides are not toxic substances but proteins, analogous to amino acids and useful to the organism. Hyperpolypeptidemia coexists with nervous, humoral and toxic symptoms in several diseases, but it is not the cause of the symptoms.

Ginecologia, Turin

2: 803-906 (Sept.) 1936

Urea Clearance Test in Pregnancy and Puerperium. E. Berutti.—p. 803.
Renal and Hepatic Lesions from Uranium Nitrate Poisoning in Normal and Oophorectomized Rabbits: Histologic Study. A. Salvini.—p. 846.
*Behavior of Zambrini Ptyaloreaction in Pregnancy, Labor and Puerperium. R. Bolaffi.—p. 871.
Influence of Diet of Mothers on Amount of Carotenoids in Colostrum and Milk. V. Madon and E. Guidetti.—p. 889.

Zambrini Ptyaloreaction in Pregnancy.—The Zambrini ptyaloreaction is based on the changes of saliva produced by addition of a coloring reagent prepared as follows: cochineal carmine 1 Gm., bioxiantroquinone 7 Gm., trioxiantroquinone 1 Gm., tincture of madder 1.3 Gm., and 95 per cent alcohol 100 Gm. One cubic centimeter of saliva is taken from a washed mouth directly into a graduate to which 15 or 20 drops of the reagent is added. The graduate is shaken, its mouth being covered with white paper. The saliva, in contact with the reagent, takes a color that may vary from light yellow to dark violet. The results of the test can be interpreted immediately after the test or later and do not change for several hours or days, provided the tube is left in a dark place. The Zambrini standard chromatic scale of the test has sixteen different shades. In the original test light shades (low figures in the scale) indicate a diminished vital resistance, whereas dark shades (high figures in the scale) indicate good vital resistance. The color changes in the test from dark to light indicate humoral variations in pathologic conditions. The test is of clinical value because the color scale in the saliva varies with the evolution of the disease to lighter shades on aggravation and to darker shades on improvement of the patients. Bolaffi made the test in normal and pathologic pregnancy, labor and the puerperium. He states that the reaction is reliable because it shows the real organic condition in all cases. In toxic forms of pregnancy, as well as in cardiac diseases and pulmonary tuberculosis complicating pregnancy, the variations of the color in the saliva correspond to the clinical evolution. The test shows sensitivity during labor in its color modifications to lighter shades if the woman is fatigued. A normal puerperium does not induce noticeable variations in the behavior of the test.

Minerva Medica, Turin

2: 241-264 (Sept. 15) 1936

Electrocautery Resection of Pneumothoracic Pleural Adhesions. U. Carpi.—p. 241.
*Behavior of Lactacidemia in Diabetic Patients Before and After Administration of Epinephrine. S. Battistini and L. Herlitzka.—p. 248.
Neurasthenic and Psychasthenic Syndrome in Course of Essential Hypochrome Anemia. A. M. Bonnano.—p. 252.
Behavior of Osmotic Resistance of Erythrocytes and Hemoglobin Metabolism in Acute Phase of Decompensation and in Compensation in Heart Diseases. M. Francescon.—p. 255.

Behavior of Lactacidemia in Diabetes.—Battistini and Herlitzka aimed at ascertaining the origin of hyperglycemia that follows administration of epinephrine in normal persons. They studied the behavior of lactacidemia in diabetes, before and after administration of epinephrine, and conclude that lactacidemia and glycemia in the arterial and venous blood are equal when the determinations are made with the patients at rest and with fasting stomachs. Following the administration of epinephrine, lactacidemia increases, especially in the venous blood; glycemia does not increase or increases slightly, especially in the venous blood, and the ratio between the molecular concentration of lactic acid and dextrose increases in relation to the intensity of lactacidemia. The slight hyperglycemia induced by epinephrine in diabetic patients, in comparison with that induced by the same test in normal persons, depends on the lowered reserves of carbohydrates in diabetic patients. It originates in a mobilization of dextrose from the muscles and perhaps also from dextrose stored in the liver. Dextrose mobilized by epinephrine becomes reactive and increases the amount of reactive dextrose in the blood of the patients. This mechanism explains hyperglycemia following administration of epinephrine in normal persons.

2: 265-288 (Sept. 22) 1936

Asthenia in Symptomatology of Gastroduodenal Ulcer. L. Bordoli.—p. 265.
*Lactacidemia in Renal Insufficiency. A. Cionini and L. Herlitzka.—p. 268.
Lipid Metabolism in Cancer of Internal Genitalia in Women Before and After Surgical, Radium and Roentgen Treatments. M. Titone.—p. 271.

Lactacidemia in Renal Insufficiency.—Cionini and Herlitzka determined the lactacidemia in a group of patients suffering from complete renal insufficiency. Their work aimed at verifying the rôle of lactacidemia in the pathogenesis of uremic acidosis. They conclude that lactacidemia is normal in patients suffering from complete renal insufficiency with moderate hyperazotemia and is increased in those presenting complete renal insufficiency with a high degree of hyperazotemia. In the latter group hyperlactacidemia is not intense and does not parallel the variations of hyperazotemia. As a rule, a lowering of the alkali reserve coincides with an increase of lactacidemia, but the variations of the latter do not parallel those of the former. Renal retention and possibly also anoxemia of the tissues due to circulatory insufficiency are the main factors involved in the development of lactacidemia in renal insufficiency. Hyperlactacidemia does not seem to play an important part in the development of uremic acidosis.

Pediatria, Naples

44: 853-948 (Oct. 1) 1936

Actual Reaction of Feces of Infants in Relation to Diet in Nutritional Disturbances. R. Pachioli and V. Mengoli.—p. 853.
Specificity of Skin Reaction to Tuberculin in Biologic Diagnosis of Tuberculosis. A. Corbia.—p. 869.
*Plaster Tuberculin Test: Simplification of Percutaneous Test. M. Verde.—p. 874.
Alterations of Blood and Bone Marrow Cells in Toxic Infections in Infants. A. Pouché and F. Tecilazic.—p. 882.
Postdiphtheritic Hemiplegia: Case. L. Taranto.—p. 903.
Eclamptic Pseudo-Uremia with Inflammatory Meningeal Reaction in Course of Acute Glomerulonephritis: Case. G. Dondi.—p. 910.

Simplification of Percutaneous Tuberculin Test.—Verde performed the Pirquet and Mantoux reactions and the tuberculin plaster test in 165 children ranging in age between 2 months and 11 years. The tests gave positive results as follows: Pirquet 49 per cent, Mantoux 55.7 per cent and

tuberculin plaster test 51 per cent. The author concludes that the tuberculin plaster test has the following advantages over the Pirquet and Mantoux reactions: a simple technic, which permits rapid performance of the test by physicians and sanitarians, without having to resort to surgical instruments and without trauma or pain. The test is not followed by complications, pseudoreactions, abnormal reactions or infection. The results show sensitivity of the skin early in the development of tuberculosis, so that the test can be used not only in early diagnosis but also in preventing the disease. It is advisable to resort to the test as a preliminary to the Mantoux test, which can be made by physicians in cases selected from the results of the tuberculin plaster test.

Policlinico, Rome

43: 1767-1810 (Oct. 5) 1936. Practical Section

Permanent Internal Derivation of Bile as Radical Surgical Treatment of Biliary Calculosis. G. Baggio.—p. 1767.
*Roentgen Treatment of Salivary Fistula. G. Barbèra.—p. 1773.

Roentgen Treatment of Salivary Fistula. — Barbèra makes a critical study of the several operations for salivary fistula. He advises the suppression of the salivary secretions by high voltage roentgen irradiations on the area of the parotid gland by the following technic: limitation of the parotid field with lead material, focal distance 30 cm., hardness of rays 180 kilovolts, and high filtration of rays through a filter of 0.5 mm. of copper and 3 mm. of aluminum. The total dosage is 600 roentgens, given every other day as follows: 300 roentgens for the first irradiation and 150 for the second and third, respectively. The irradiations are measured by Hammer's instrument on the skin. Local painful swelling is relieved by applying the hot water bag on the irradiated area in the afternoon of the day on which the irradiation was given. The salivary secretion is controlled from the first roentgen treatment. After the third and last treatment it is definitely suppressed. The fistula spontaneously heals in two or three days after completion of the treatment and recurrence does not take place. Only exceptionally is a complementary operation necessary to cure the fistula, the diminished salivary secretion during the operation being an important factor for the result. He reports a case in which the satisfactory results of roentgen treatment, not followed by operation, were found to persist a long time after administration of the treatment.

Prensa Médica Argentina, Buenos Aires

23: 2195-2248 (Sept. 23) 1936

Roentgen Kymogram of Normal Heart and Modifications of Left Ventricle in Pathologic Conditions. M. R. Castex, E. Lanari and A. Battro.—p. 2195.
*Ligamentopexis: New Technic. V. Bertola.—p. 2208.
Quantitative Dosage of Ultraviolet Irradiations: Technic. A. E. Roffo.—p. 2215.
Mega-Esophagus: Cases. A. F. Parodi.—p. 2226.

Ligamentopexis. — Bertola performs extraperitoneal ligamentopexis by the transperitoneal route with the following technic: medial umbilicopubic laparotomy, opening of the subperitoneal layers by a 2 cm. peritoneal incision (which is made on the peritoneum at the internal margin of the exit of the round ligament), exposure of the peritoneal aspect of the inguinal-abdominal region (especially at the point in which Cooper's ligament and Thompson's fascicle of iliopubic fibers meet), separation of the round ligament from the surrounding tissues, mobilization of the segment of the round ligament included between the body of the uterus and the exit of the ligament through the peritoneal opening and fixation of the ligament (by means of a suture with chronic catgut No. 2) to Thompson's fascicle of iliopubic fibers. The fixation is made at the level of the external edge of the anterior rectus muscle (Henle's ligament). The segment of round ligament between the point of its fixation and its exit through the peritoneal opening passes over the iliac vessels but does not compress them. According to the author, the advantages of ligamentopexis made by this technic are the preservation of the normal anatomic disposition of the uterus into the peritoneal cavity and the fact that the organ is firmly fixed. With the precaution of emptying the bladder before operating, no complications set in.

Semana Médica, Buenos Aires

43: 825-892 (Sept. 24) 1936. Partial Index

Previous Pneumothorax in Surgery on Thorax. J. Arce.—p. 825.
Electrocardiographic Curve of Pericarditis. R. A. Izzo, J. B. Ferradás and J. M. Laplace.—p. 835.
*Laurence-Biedl Syndrome: Case. I. Maldonado Allende.—p. 841.
Generalized Pneumococcic Peritonitis: Case. R. Naveiro.—p. 852.
Semeiology of Anemia. P. Cossio.—p. 855.
New Apparatus for Performance of Artificial Pneumothorax. R. S. Barousse.—p. 863.
Fibromyoma of Fallopian Tubes: Case. R. Gastorini.—p. 869.

Laurence-Biedl Syndrome.—Maldonado Allende reports a typical case of Laurence-Biedl syndrome in a child aged 10 years. The patient's parents are cousins and in some members of both families there are endocrine dysfunctions. The author says that in the pathogenesis of the syndrome the insufficiency of the hypophysis in association with alterations of the hypothalamus plays the most important part. The alterations of those structures are the cause of the symptoms. Combined organotherapy of thyroid and hypophysis, administered for a long time, induces, according to the literature, improvement of many symptoms and, in some cases, the clinical recovery of the patient. In the author's case the thyroid treatment resulted in increasing the basal metabolism and improving the visual and psychic conditions of the patient.

Klinische Wochenschrift, Berlin

15: 1185-1224 (Aug. 22) 1936. Partial Index

*Reticulocytosis During Spring. W. Grunke and J. Diesing.—p. 1190.
Nontuberculous Pulmonary Cavities. L. Hess.—p. 1191.
Studies on Motility of Ureter. F. Friedl.—p. 1197.
Etiology of Diabetic Retinitis and Its Relation to Vascular and Nervous Changes. R. Braun.—p. 1198.
*Occurrence, Differentiation and Experimental Transformation of Three Types of Diphtheria Bacilli. K. L. Pesch.—p. 1202.

Reticulocytosis During Spring.—In the course of studies on normal persons, which were made during the spring, Grunke and Diesing observed reticulocyte values that were considerably above the values usually regarded as normal. It was decided to make tests during the different seasons. Tabular reports and a diagram indicate that the reticulocytes are nearly always increased during spring. The authors admit that they do not know the cause of this reticulocytosis which appears in the spring but they suggest that increased sun radiation, particularly ultraviolet radiation, may play a part.

Studies on Types of Diphtheria Bacilli.—Pesch investigated the statements of Anderson and his collaborator to the effect that Löffler's diphtheria bacilli can be divided into three types (gravis, mitis and intermedius). He examined 2,610 pharyngeal and nasal smears and studied 332 diphtheria strains. Of these, 208 were from diphtheria patients, 115 from convalescent persons and nine from carriers. Studies on these 332 diphtheria strains corroborated the occurrence of three different types of diphtheria bacilli. These three types differ not only in the shape of their colonies, in hemolysis and in starch acidification but also in their growth on certain synthetic culture mediums and particularly in the type and rapidity of their increase in nutrient bouillon (curve of increase). Regarding the transformation of the types, the author says that after about four or six weeks in aerobic bouillon cultures there is always a complete transformation from the intermedius into the mitis type. This transformation could not be reversed even after daily transfer on new Löffler plates (continued for weeks) and after six guinea-pig passages.

Medizinische Welt, Berlin

10: 1025-1060 (July 18) 1936. Partial Index

Epidemiology, Diagnosis, Therapy and Prophylaxis of Weil's Disease. P. Uhlenhuth.—p. 1025.
Bornholm Disease (Acute Epidemic Myalgia). H. Zeiss.—p. 1028.
*Rare Indications for Cesarean Operation. F. Isbruch.—p. 1031.
Saving of Life of Drowned Persons (with Especial Consideration of Present Status of Resuscitation Methods). E. Homann.—p. 1034.
*Treatment of Sequels of Epidemic Encephalitis. H. Weber.—p. 1038.
Experiences with Prophylactic Serum Against Measles. L. Rischke.—p. 1039.

Rare Indications for Cesarean Operation. — Isbruch emphasizes that he does not wish to argue for a wider use of the cesarean operation; on the contrary, he considers it the task of the obstetrician to utilize and support the natural processes. However, aside from the typical indications for the

cesarean operation there are cases in which it is not only the most rapid and simplest method for the obstetrician but also life preserving for the child and the least dangerous for the mother. The author describes five cases. In the first, a cervical transperitoneal cesarean operation was done because an intracervical myoma made delivery by the natural route impossible, even if the life of the child had been sacrificed. The cesarean operation preserved the life of mother and child and made possible the removal of the myoma. The second case concerns a woman in whom the first delivery had resulted in a complete perineal tear with persisting rectovaginal fistula and incontinence. The second delivery was spontaneous, but repeated operations did not completely counteract the incontinence. During the third pregnancy the woman demanded that at term a cesarean operation be performed so as to avoid renewed tearing of the perineum. This was done. The author admits that after plastic repair of the perineum it is usually possible to make room enough by lateral incisions, but in this case it was impossible. In the third case the cesarean operation was resorted to on account of an extremely severe vulval edema. The fourth case concerned a woman with vaginal stenosis and hypoplasia of the uterus. Since the uterine contractions involved the danger of rupture of the hypoplastic uterus, the cesarean operation was done following the premature rupture of the bag of waters six weeks before the end of term. The fifth case concerns a uterus bicornis. In this connection the author emphasizes once more that he does not consider cesarean section necessary for all such cases but stresses that in this case the pregnancy had developed in the weaker horn, which, as the operation revealed, would not have withstood the strain of the uterine contractions.

Treatment of Sequels of Epidemic Encephalitis.—Weber recommends the administration of large doses of atropine for the treatment of postencephalitic parkinsonism. In a man he begins with three daily administrations of 0.25 mg. of atropine (after the morning, noon and evening meal). He considers the oral administration in the form of drops or pills the best method, but, if the oral medication is not well tolerated, it can be given also by subcutaneous injection or in the form of rectal suppositories. The dose is gradually increased by 0.25 mg. daily until the subjective and objective improvement shows no further progress, which is usually the case when a daily dose of from 6 to 8 mg. has been reached. After this maximal dose has been given for several days, the dosage is gradually reduced. The author says that cumulation does not have to be feared, since atropine is excreted within a few hours. The medication usually has to be continued for a long time, because it does not cure the basic process but only improves the disturbances, so that even 50 per cent of the patients with the severe forms are improved to such an extent that they can work again. If the treatment is to be interrupted by intervals, the cessation should always be gradual so as to obviate withdrawal symptoms. In some cases the doses have to be increased to more than 8 mg. daily, but 12 mg. is usually the maximum. The author thinks it advisable to hospitalize these patients for a while in order to be able to determine the optimal dose.

Münchener medizinische Wochenschrift, Munich

83: 1119-1158 (July 10) 1936. Partial Index

*Vitamin Deficiency as Cause and Sequel of Gastro-Intestinal Disturbances. W. Stepp.—p. 1119.
*Practical Significance of Blood Factors M and N for Determination of Paternity, Also Contribution to Demonstration of Defective N Receptors (N 2). F. Pietrusky.—p. 1123.
Status and Results of Research on Blood Groups. S. Wellisch.—p. 1124.
Technic of Blood Transfusion. T. Weiss.—p. 1131.
Rural Physician and Suppurations Above and Below the Diaphragm. K. Baeckmann.—p. 1135.

Vitamin Deficiency and Gastro-Intestinal Disturbances.—According to Stepp, some vitamins are extremely unstable and thus there is a possibility that in case of changes in the gastro-intestinal tract they may be destroyed before they are utilized. On the other hand, their resorption may encounter difficulties, either because the resorptive action of the epithelium of the small intestine is reduced or because in case of acceleration of the peristalsis of the small intestine the retention in the intestine is too short for resorption. The author first directs attention to the significance of the antineuritic vitamin in the gastro-intestinal function; a deficiency in this substance produces a disturbance in the motility. He discusses the pathologic changes developing in the gastro-intestinal tract as the result of vitamin A deficiency. The hydrochloric acid secretion is reduced. Diarrheas with mucosanguineous stools often appear, but they quickly respond to cod liver oil medication. In gastroenteritis, in which the intestinal passage is usually greatly accelerated, vitamin A resorption may be interfered with. Regarding the deficiency in vitamin B_1 the author says that this substance is absolutely necessary for the normal tonus of the musculature of the gastro-intestinal tract and that it plays an important part in the processes of resorption. The lack of vitamin B_1 results in cessation of the hydrochloric acid production, loss of appetite, atony of the gastro-intestinal tract and a peculiar tendency of the intestine to inflammatory processes. As to the vitamins B_2 and B_6, he points out that their deficiency plays a part in pellagra, stomatitis, glossitis, diarrhea, colitis and intestinal hemorrhages. Moreover, in sprue and celiac disease, a deficiency of the B factors and of vitamin C plays a part. Vitamin C is stored in the small intestine and the author says that this storage is not merely a phase of the resorption, for it is observed also if the cevitamic acid is administered intravenously. In tolerance tests with cevitamic acid it was observed that, in patients with gastritis in whom hydrochloric acid was absent, the elimination of cevitamic acid was much less than in normal persons. This is due either to destruction of the vitamin or to the fact that the vitamin reserves are extremely low. In discussing the treatment with vitamins, the author thinks that on the whole it is better to supply the vitamins in their natural state; that is, in the food, rather than in their pure form.

Blood Factors M and N and Determination of Paternity.—Pietrusky shows that there are N receptors which, in the usual method of examination even if the absorption method is used, escape detection. He cites cases in which it is advisable to consider the possibility of a defective N receptor that has escaped detection. He made efforts to produce especially potent anti N serums in order to detect with these the defective N receptor. He dilutes a good anti N serum in a ratio of 1:100 and subjects it to four or five absorptions with fresh, washed A M blood corpuscles until it fails to react with M blood corpuscles even after one hour. Then it is concentrated in the vacuum to from one fifth to one tenth of the original quantity. This is followed by filtration and, in order to obtain a physiologic solution, it is subjected to dialysis. If in the purity test with blood corpuscles M it shows agglutination within the first thirty minutes, it is once more subjected to absorption with A M and to concentration. In this manner the author obtained an extremely sensitive anti N serum. A case in which the ordinary serums had failed could be completely cleared up with the new serum. The author emphasizes that the blood group analyses, on which legal decisions are based, should be made only by laboratories which are entirely competent for such work.

Wiener medizinische Wochenschrift, Vienna

86: 985-1048 (Sept. 5) 1936. Partial Index

Papillomatosis of Renal Pelvis and Ureter. P. Blatt.—p. 987.
Perinephritis. E. Felber.—p. 999.
Diverticula of Female Urethra. A. Glingar.—p. 1000.
Dislocation and Compression of Ureters by Retroperitoneal Glands. E. Kornitzer and L. Reich.—p. 1015.
Demonstration of Tubercle Bacilli in Urinary Disease with Aid of Löwenstein Culture Method. S. Pelz.—p. 1027.
*Decapsulation and Denervation of Kidneys. S. K. Sen.—p. 1035.

Decapsulation and Denervation of Kidneys.—The discovery of the effect of sympathectomy on the blood pressure has reawakened, according to Sen, the interest in kidney decapsulation. In his material the author found a fall of blood pressure after decapsulation of a kidney and application of phenol to the renal blood vessels. The blood pressure, however, never failed to rise once more, so that a permanent result was not obtained. The removal of the thickened capsule in thirty-two cases of perinephritis was successful in relieving the pain and the condition itself. The author likewise saw successful application of decapsulation in sixteen out of eighteen cases of hematuria in focal nephritis and in hemorrhagic nephritis. Decapsulation was effective in four cases of ascending kidney infection. He concludes that the operation of decapsulation gives gratifying results when performed for a proper indication.

Polska Gazeta Lekarska, Lwów

15: 753-768 (Sept. 27) 1936

*Experimental Studies on Sterilization of Surgical Instruments in Distilled Water. E. Wajgiel and A. Dziżyński.—p. 753.
Excess of Vitamin C in Healthy and Diseased Persons. W. Tomaszewski.—p. 756.
Efficacy of Treatment of Chronic Catarrh of Neck of Uterus with a 10 Per Cent Colloidal Silver Preparation Containing Sodium Cholate. E. Ostoja-Ostojski.—p. 759.

Sterilization of Surgical Instruments.—Wajgiel and Dziżyński report experimental studies on the sterilization of surgical instruments in distilled and undistilled water and on its action on colon bacilli, Bacillus pseudotuberculosis, Bacillus prodigiosus, Staphylococcus pyogenes-aureus, Bacillus pseudoanthracis, Bacillus mesentericus and Bacillus subtilis. In distilled water at 100 C. some of the bacteria, such as Bacillus subtilis and Bacillus mesentericus, are destroyed in half the time it takes in undistilled water at the same temperature. The observations prove that the instruments can be equally well sterilized in either distilled or undistilled water. In boiling distilled or undistilled water of the same p_H Bacillus subtilis is killed in the same length of time.

15: 769-788 (Oct. 4) 1936

*Pyogenic and Necrotic Diseases of Lungs and Their Treatment. A. Landau, E. Steffen, J. Gryfenberg.—p. 769.
*Excess of Vitamin C in Healthy and Diseased Subjects. W. Tomaszewski.—p. 773.
Experiment with Soneryl (a White, Crystalline Hypnotic, Butyl-Ethyl-Barbituric Acid) as Somniferous Remedy. A. Erb.—p. 779.

Treatment of Pyogenic and Necrotic Diseases of Lungs.—Landau and his co-workers state that during the last twenty-five years pyogenic and necrotic diseases of the lungs have had three stages in their treatment: 1. Before the introduction of pneumothorax, pharmacologic remedies were applied by mouth, but the results were unsuccessful. Arsphenamine proved satisfactory in cases of syphilitic origin. 2. Pneumothorax was applied to the upper part of the lungs with fairly good results and in some cases to the lower lobes also with success. 3. Alcohol was introduced intravenously and aided in postponing conservative treatment (drugs and arsphenamine) and was especially beneficial when combined with pneumothorax. Following is a summary of their cases: (*a*) out of a group of thirty-six pyogenic patients treated with pneumothorax, twenty-two (61 per cent) recovered or were much improved, eleven showed no improvement and three died; (*b*) of forty-six necrotic patients treated with pneumothorax and alcohol, twenty-one (48 per cent) recovered or were much improved, fourteen were not benefited and eleven died; (*c*) of eighteen patients treated with alcohol, seven recovered and six improved (a total of thirteen, or 72 per cent, benefited). Alcohol aids in healing after operation.

Excess of Vitamin C in Healthy and Diseased Subjects.—Tomaszewski states that he has experimented with vitamin C in both healthy and diseased persons. Researches have been made on the mechanism of behavior of vitamin C in the body, especially in the blood. The normal elimination in twenty-four hours of healthy persons who have had plenty of vitamin C is in excess of from 18 to 30 mg. (Tillmann's method of dichlorphenolindophenol). In persons considered healthy but not receiving enough vitamin C, examination discloses the results of hypovitaminosis. An organism oversupplied with vitamin C excretes the excess on the first day through the urine. Almost all the diseased patients on whom the research was made with the aid of an excess of vitamin C showed marked degrees of hypovitaminosis, depending on the kind of disease and method of treatment (such as an ulcer diet). A distinct lack of vitamin C has been noted in some cases of diseases of the blood and of the digestive organs and in chronic rheumatism. In patients with high temperatures there is great excretion, especially at the onset, and examination of the urine is of great value in demonstrating such cases. It is likely, therefore, that the reduction bodies in cases of high temperature are not altogether those of vitamin C but come partly from another source. In cases of diabetes, low excretion has been observed which must be ascribed to the strong dilution of the vitamin C in the urine. During pregnancy the amount of vitamin C is often diminished, probably because of increased demand. Hypovitaminosis during pregnancy causes low resistance and is probably one of the causes of infection in the urinary tract during this time. Stages of low vitamin C or hypovitaminosis are not considered a disease, but, in cases of low general resistance, influence the time of recovery from various diseases.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

Aug. 30, 1936 (No. 16) pp. 1201-1280. Partial Index

Fractional Components of Gastric Secretion: Their Diagnostic Significance. G. S. Lurye and R. F. Kemarskaya.—p. 1207.
Prophylaxis of Ascending Gonorrhea in Women. E. I. Kvater, S. V. Trakhtenberg and I. I. Kaganovich.—p. 1213.
The Miculicz Tampon in Gynecology. M. B. Mayzch.—p. 1223.
Borderline Pediatrics and Urologic Surgery. A. Ya. Dukhanov.—p. 1228.
*Early Diagnosis of Sarcoma of Skeletal Muscle. A. P. Shanin.—p. 1232.
Colds in Relation to Meteorological Conditions. B. B. Koyranskiy.—p. 1239.

Early Diagnosis of Sarcoma of Skeletal Musculature.—On the basis of seventy-five cases of sarcoma of the skeletal musculature observed at the Oncologic Institute in Leningrad from 1927 to 1934, Shanin states that correct diagnosis can be made on clinical data aided in some of the cases by a histologic examination. The clinical diagnosis includes the study of the etiologic factors, the early signs of a swelling, its origin, the localization of the involved muscle or group of muscles, the relation of the swelling to the neighboring tissues and the differentiation from other pathologic processes involving skeletal muscles. Trauma and a preceding infection appear to be the predisposing factors in a certain number of the cases. The majority, however, give no history of either. Pain, in a number of cases the result of a residual myositis of a preceding trauma or infection, is one of the earliest symptoms. There may be likewise early involvement of a nerve trunk or of a blood vessel giving rise to pains, paresthesias, anesthesias or feeble pulsation in the involved arterial trunk below the tumor. Histologic diagnosis is particularly valuable in determining the prognosis. The author feels that the state of maturity and distribution of the muscular fibrous substances is of a greater prognostic significance as to malignancy in a given case than the quantitative and qualitative relationship of the stroma to the parenchyma of a sarcomatous tumor.

Ugeskrift for Læger, Copenhagen

98: 819-852 (Sept. 3) 1936

Hyperthyroidism with Diffuse Renal Changes: Case. C. Holten.—p. 819.
Determinations of Hemoglobin with Van Slyke's Hemometer, Erythrocyte Counts and Determinations of Cell Volume in Normal Persons, with Orientating Remarks Concerning Calculation of Index. E. Bierring and G. Sørensen.—p. 822.
*Isolated Traumatic Rupture of Pancreas. K. Bønsdorff.—p. 829.
Stethoscopic Results from Parts of Umanak District, Greenland. B. Scheibel.—p. 830.
Impressions from Stay in United States. G. Alsted.—p. 832.

Isolated Traumatic Rupture of Pancreas.—Bønsdorff says that rupture of the pancreas as the only lesion is rare and presumably occurs, when the stomach is empty, through pressure of the pancreas against the spinal column by the object struck. The prognosis is grave. The phenomenon of primary shock, followed by improvement and then aggravation with simultaneous appearance of a tumor in the epigastrium, is characteristic in a number of the cases of isolated rupture of the pancreas (Garré and Kørte). The author's patient, a girl aged 8, fell from her bicycle about four and a half hours after a meal and hit the right side of the epigastrium against the handle bar. After a relatively free interval of three weeks, aggravation with almost incessant vomiting occurred and she was admitted for treatment a week later. Attention is called to the fact that a child could eliminate up to 800 cc. of secretion, probably mostly pancreatic juice, daily for several weeks without impairment of digestion, and also to the increased diastase values in the urine, considered by Usland of great diagnostic significance. There was no glycosuria in this case and no fatty necrosis. Authors agree that as far as possible the ruptured place should be sutured and drained (Usland). In this case the patient was well five weeks after simple drainage.